SECTION 02010 - EXISTING SUBSURFACE CONDITIONS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

A. Examination of the Site

- 1. Before submitting bids, the CONTRACTOR shall visit the site and inform themselves as to the location, nature of the work, equipment and facilities needed, general and local conditions prevailing at the site and all matters which may affect the work under this contract.
- Before submitting bids, the CONTRACTOR shall examine all sources of information concerning subsurface soil and groundwater conditions. Each bidder shall draw their own conclusions concerning how these affect their work. Conditions which would not permit the CONTRACTOR to fulfill the intent of the contract shall be brought to the attention of the OWNER consistent with Notice to Contractors.
- 3. Subsurface Information: A geotechnical data report summarizing subsurface conditions and a memorandum summarizing the results of a test pit exploration program have been prepared for the project by Haley & Aldrich, Inc., dated September 10 and 4 December, 2008, are included as Attachments A and B, respectively.

B. Test Boring Results

- The OWNER assumes no responsibility for the accuracy of the test results as shown in the
 appended reports. They are included only as a general indication of the materials likely to be
 found adjacent to the holes bored at the site of the proposed work. The CONTRACTOR shall
 examine this data and make their own investigation and other preliminary data, and shall base
 their bid on his/her opinion of the conditions likely to be encountered.
- 2. The bidder's submission of their proposal shall be considered "prima facie" evidence that they have made their examination as described in this Section.

1.02 RELATED REQUIREMENTS

A. Instructions to Bidders

PART 2 – PRODUCTS (not applicable)

PART 3 – EXECUTION (not applicable)

End of Section

Attachments:

Attachment A: Report entitled, "Geotechnical Data Report, MaineHealth / United Way

Development, Somerset and Chestnut Streets, Portland, Maine," prepared by

Haley & Aldrich, Inc., dated10 September 2008

Attachment B: Memorandum entitled, "Results of Test Pit Exploration Program, MaineHealth /

United Way Development, Somerset and Chestnut Streets, Portland, Maine,"

prepared by Haley & Aldrich, Inc., dated 4 December 2008.



GEOTECHNICAL DATA REPORT
MAINEHEALTH / UNITED WAY DEVELOPMENT
SOMERSET AND CHESTNUT STREETS
PORTLAND, MAINE

by

Haley & Aldrich, Inc. Portland, Maine

for

Maine Medical Center Portland, Maine

File No. 35611-000 10 September 2008



Haley & Aldrich 75 Washington Avenue Suite 203 Portland, ME 04101-2617

Tel: 207.482.4600 Fax: 207.775.7666 HaleyAldrich.com



10 September 2008 File No. 35611-000

Maine Medical Center 22 Bramhall Street Portland, Maine 04102-3175

Attention:

Daniel F. Doughty, AIA

Director

Subject:

Geotechnical Data Report

Maine Health/United Way Development

Somerset and Chestnut Streets

Portland, Maine

Dear Dan:

This data report presents the results of the geotechnical field investigation and laboratory test program conducted in support of the subject project. This work was undertaken at your request and in accordance with our proposal dated 2 July 2008 and your subsequent authorization.

We have coordinated our work with the following project team members:

Maine Medical Center (MMC)	Owner
Consigli Construction Co., Inc. (Consigli)	General Contractor
Scott Simons Architects(SSA)	Architect (Garage)
Harriman Associates, Inc. (Harriman)	Architect/Structural/MEP
	(Offices)
Becker Structural Engineers, Inc. (BSE)	Structural Engineer (Garage)
Woodard & Curran (W&C)	Civil Engineer (Garage and
	Offices)
John Tewhey Associates (JTA)	Environmental Compliance

This report has been prepared for use by the design team during the design development (DD) and contract document (CD) phases of the project. A final geotechnical engineering report will be issued separately outlining foundation support and other geotechnical recommendations for the east office building and parking garage.

It is our intent that this report be included in the CD set or as a reference document in the CDs for use by prospective bidding contractors.

ELEVATION DATUM

Elevations referenced herein are in feet and reference Portland City Datum (PCD). Portland City Datum relates to the National Geodetic Vertical Datum of 1929 (NGVD 29) as follows:

Elevation in ft (PCD) = Elevation in ft (NGVD 29) + 0.02 ft

SITE LOCATION, EXISTING CONDITIONS & PREVIOUS USE

The proposed development area is located in the Bayside area of Portland. This portion of the Back Cove region, including this site, once consisted of tidal mudflats (see 1886 Sanborn Maps for area in Appendix D) and was filled with demolition debris (brick, concrete, rock fragments and wood), refuse, ash and soil during the 18th, 19th and 20th centuries, a great portion of which was generated by the Great Portland Fire of 1866.

The approximate 3-acre site is bound by Elm Street to the south, Somerset Street to the east, commercial parcels to the west and Chestnut Street to the north. This parcel is currently undeveloped. Existing site grades range from El. 9 around the perimeter to El. 12 at the center of the site. A portion of the parcel was formerly occupied by the Union Branch rail yard. The general site location is shown on Figure 1, Project Locus. Historical Sanborn Maps of the site are provided in Appendix F.

PROPOSED SITE DEVELOPMENT

It is our understanding that the principal components of the site development include the following:

- East Office Building eight-story, approximately 84,000 square foot (sf) office building located at the east end of site, adjacent to Somerset and Chestnut Streets.
- West Office Building future ten-story, approximately 100,000 sf office building located at the west end of site, adjacent to Somerset and Elm Streets.
- Parking Garage seven-story, approximately 700-car parking structure located between the east and west office buildings, along Somerset Street.

It is our understanding that the feasibility of constructing one level of below-grade parking within the above-grade footprint of the parking garage will be considered by the design team during the DD phase. It has not yet been determined if the east and west office buildings will be structurally connected or separate from the parking garage. The Trust for Public Land will be designing/constructing a public trail that will be integral to the proposed site development and will run along the north side of the site behind the office buildings and garage.

Based on discussions with Harriman and W&C, it is our understanding that proposed site grades will be within 1 ft of existing site grades.



SUBSURFACE EXPLORATION PROGRAM

Previous Explorations

Previous explorations were conducted at the site in association with three separate projects: 1) Portland Brownfield's Project completed by Tewhey Associates in 1998, 2) Phase II Environmental Site Assessment (ESA) completed by Haley & Aldrich in 2000 on the former Union Branch Rail Line for the Maine Department of Transportation, and 3) Master Planning Geotechnical Investigation completed by Haley & Aldrich in 2006 for SSA on behalf of the City of Portland.

Explorations consisted of both test borings and test pits. The locations of the explorations are shown on Figure 2, Site and Subsurface Exploration Location Plan. Logs detailing subsurface soil, rock and groundwater conditions for previous explorations are provided in Appendix A.

Portland Brownfield's Project Explorations (1998)

A total of ten test pits, designated TP-1 through TP-10, were excavated as part of the Portland Brownfield's project completed by Tewhey Associates in October 1998. Test pits were excavated by Commercial Paving & Recycling of Scarborough, Maine. Of these explorations, only TP-3 through TP-6 were excavated within the vicinity of the proposed office buildings and parking garage. Only these explorations are discussed herein. Test pits were excavated to depths ranging from approximately 10 to 12 ft below ground surface (BGS) and were monitored in the field by Tewhey Associates.

Phase II ESA Explorations (2000)

A total of fifteen test borings, designated B101 through B115, and twenty-six test pits, designated TP101 through TP125, were drilled/excavated for the Phase II ESA completed by Haley & Aldrich in November 2000. Of these explorations, only test boring B110(OW) and test pits TP103 through TP105 and TP117 through TP122 were conducted at the subject site. Only these explorations are discussed herein.

The test boring was drilled by Maine Test Borings, Inc. of Brewer, Maine and was advanced to a depth of 12 ft BGS using a Mobile Drill B-47 track mounted drill rig with 4.25-in. inside diameter (ID) hollow stem augers (HSA). Soil samples were collected continuously through fill soils and into naturally deposited soils by driving a 1-3/8-in. ID split-spoon sampler with a 140-lb hammer dropped from a height of 30 in., as indicated on the test boring logs. The number of hammer blows required to advance the sampler through each 6 in. interval was recorded and is provided on the test boring logs. The Standard Penetration Test (SPT) N-value is defined as the total number of blows required to advance the sampler through the middle 12 in. of the 24-in. sampling interval. An observation well was installed in completed borehole B110.

The test pits were excavated by Environmental Projects, Inc. of Gray, Maine and were advanced to depths ranging from 3.5 to 12.5 ft BGS using a Komatsu tracked excavator.



Master Planning Explorations (2006)

Eleven test borings, designated HA06-1 through HA06-11, were drilled in association with the Bayside Parking Garage, proposed for an adjacent property and a Master Planning study partially conducted on the subject parcel. Only test borings HA06-7 through HA06-8 were drilled in the vicinity of the proposed east office building and parking garage and are discussed herein.

Test boring locations were laid out in the field by Haley & Aldrich by taping/pacing distances from existing site features. "As-drilled" test boring locations were recorded in the field by Haley & Aldrich using GPS survey equipment.

Subsurface explorations were drilled using trailer-mounted Mobile Drill B-47 drill rig. Test borings were drilled to depths of 54 and 67 ft BGS, respectively, using 3.0-in. (NW-size) ID steel casing. Soil samples were collected at standard, 5-ft intervals using the same methodology described in the previous section.

In-situ vane shear tests were conducted within the glaciomarine clay deposit in test boring HA06-7. Vane shear tests were performed to provide information on the undrained shear strength and compressibility characteristics of the glaciomarine clay present at the site. Results of the vane shear testing are summarized in Table II and are provided on the test boring logs in Appendix A.

Recent Explorations

A total of thirteen test borings, designated HA08-1 through HA08-13, were drilled within the limits of the proposed office buildings and parking garage.

Test boring locations were laid out in the field by Haley & Aldrich by taping/pacing distances from existing site features. "As-drilled" test boring locations were recorded in the field by Haley & Aldrich using GPS survey equipment.

Subsurface explorations were drilled using track-mounted Mobile Drill B-50 drill rig. Test borings were drilled to depths ranging from 14 to 102 ft BGS using 3.0-in. (NW-size) or 4.0-in. (HW-size) ID steel casing. Soil samples were collected continuously through the fill and harbor bottom deposits and at standard, 5-ft intervals, or 10-ft intervals thereafter using the methodology described in the previous sections. Soil samples were preserved in glass jars. These samples are currently stored at our office and are available for viewing upon request.

Test borings HA08-5, HA08-7 and HA08-13 were advanced into bedrock using a 2.0-in. (NQ-size) ID diamond-tipped core barrel. Rock core samples are also being stored at our office and are available for review upon request.

In-situ vane shear tests were conducted within the glaciomarine clay deposit in several of the test borings. Vane shear tests were performed to provide information on the undrained shear strength and compressibility characteristics of the glaciomarine clay at the site.



Results of the vane shear testing are summarized in Table II and are provided on the test boring logs in Appendix B.

A total of five, relatively undisturbed samples of glaciomarine clay were obtained in test borings HA08-4, HA08-8 and HA08-10. The samples were collected in order accurately determine the compressibility characteristics and the stress history of the clay. The samples were obtained by advancing a thin-wall Shelby Tube sampler into the clay using a piston sampler. Drilling mud was used while advancing the test borings in order to minimize soil disturbance. The drilling mud consists of a relatively thick and smooth mixture of water and bentonite-based powder.

Three observation wells were installed in completed boreholes HA08-5, HA08-7 and HA08-12 to provide information on the static groundwater level within the footprint of the proposed buildings and to determine whether the groundwater levels at the site are affected by tidal fluctuations in nearby Back Cove. The observation wells consisted of 2-in. ID, machine-slotted PVC pipe and solid PVC riser pipe extending approximately 3 ft above existing ground surface. The observation wells were outfitted with a steel guardpipe and steel lock/cap assembly. Observation well installation and groundwater monitoring reports are provided in Appendix C.

SUBSURFACE CONDITIONS

Soil/Bedrock Conditions

Generally, subsurface explorations encountered the following geologic units, presented in order of increasing depth below existing ground surface:

- Bituminous Concrete/Fill
- Harbor Bottom Deposit
- Glaciomarine Clay
- Glaciomarine Sand
- Glacial Till
- Bedrock

Refer to Table I for a summary of subsurface explorations, Appendix A for historic subsurface exploration logs and Appendix B for recent test boring logs for more detailed information regarding the conditions encountered at the site. A brief description of each geologic unit is provided below.

Bituminous Concrete/Fill

The Bayside region of the Back Cove area was once a tidal mudflat area and it has a long history of filling. Approximately 10 to 15 ft of fill overlies the entire site. Several different types of material were encountered within this layer and consisted of the following:



- poorly graded to well graded GRAVEL (SP to SW) with varying percentages of silt,
- silty GRAVEL (GM)
- silty SAND (SM) with varying percentages of gravel,
- poorly graded to well graded SAND (SP to SM) with varying percentages of silt,
- Rock fill was encountered in test boring HA08-2 between 10 and 14 ft BGS.

The fill soils generally contained ash, cinders, and brick and concrete fragments.

In addition, bituminous concrete was encountered at the ground surface in test borings HA08-1, HA08-3 and HA08-4, generally within the limits of the existing parking lot located on the south end of the site. The thickness of the material ranged from 0.1 to 1.0 ft.

Harbor Bottom Deposit

This deposit was encountered in all the test borings with the exception of HA06-7, HA06-8, HA08-2 and HA08-13. This deposit was likely exposed at the historic ground surface in the tidal/mudflat area of the Back Cove prior to site filling (see Sanborn maps in Appendix F). Where encountered, the thickness of the layer ranged from approximately 1 to 5.5 ft. The material typically consisted of gray, sandy ORGANIC SILT (OL/OH) with varying percentages of organic matter (rootlets, wood fragments etc.) and shells. In some locations the material consisted of gray SILT (ML) with varying amounts of sand or gray silty SAND (SM). The deposit was generally very soft to very stiff with SPT N-values ranging from 1 to 24 bpf.

Glaciomarine Clay

Glaciomarine clay was encountered in each test boring. The deposit ranged in thickness from approximately 20 to 55 ft and generally increases in thickness to the south and west. The upper 5 to 8 ft of the deposit consisted of olive gray lean CLAY (CL) and was typically medium stiff to stiff with undrained shear strengths ranging from 1,000 to 1,700 pounds per square foot (psf) (referred to herein as the clay "crust"). The lower portion of the deposit consisted of soft to medium stiff, gray lean CLAY (CL) with undrained shear strengths typically ranging from 400 to 800 psf.

Glaciomarine Sand

Glaciomarine sand was encountered directly beneath the glaciomarine clay in test borings drilled in the northeastern portion of the site (HA08-8, HA08-10, HA08-11 and HA08-13). The thickness of the deposit ranged from approximately 5.5 to 12 ft and generally increased in thickness to the north and east. The material typically consisted of gray, poorly graded SAND (SP), well graded SAND (SW), or silty SAND (SP). The soil was generally loose to medium dense with SPT N-values ranging from 4 to 21 bpf.



Glacial Till

Glacial till was encountered either directly beneath the glaciomarine clay or the Glaciomarine Sand in all test borings with exception of HA08-8, HA08-12 and HA08-13. Where encountered, the thicknesses of the layer ranged from approximately 1.5 to 30 ft (HA08-1) and generally increased in thickness to the south and west. The glacial till generally consisted of gray silty SAND (SM) with varying amounts of gravel. The soil was typically medium dense to very dense with SPT N-values ranging from 14 to in excess of 150 bpf. Cobbles and boulders were not encountered in the till during drilling of the test borings.

Bedrock

Bedrock was sampled in test borings HA08-5(OW), HA08-7(OW) and HA08-13. Bedrock encountered at the site consists of moderately hard, fresh to highly weathered, dark gray CHLORITE SCHIST or moderately hard, moderately to highly weathered, dark gray SILTSTONE. Primary joints were dipping at near vertical angles. Both types of bedrock encountered at the site are considered part of the Cape Elizabeth Formation. At most test boring locations several feet of highly weathered bedrock was encountered.

Rock quality designation (RQD) is a common parameter that is used to help assess the competency of sampled bedrock. RQD is defined as the sum of pieces of recovered bedrock greater than 4 in. in length divided by the total length of recovered bedrock. RQD values for bedrock encountered at the site ranged from 0 to 70 percent and were typically less than 20 percent.

Groundwater Conditions

Haley & Aldrich measured groundwater levels in the observation wells installed in completed boreholes HA08-5, HA08-7 and HA08-12. Initially, the groundwater level data was collected periodically using a manually operated water level indicator. Beginning on 7 August 2008 downhole transducers were installed in the observation wells and were programmed to record the groundwater level in the wells every 15 minutes. This was done to determine whether the static groundwater level within the proposed building/garage footprints is influenced by tidal fluctuations in nearby Back Cove. All groundwater depths were measured relative to the existing ground surface. The transducers were removed from the observation wells on 22 August 2008.

Based on the data collected between 7 and 22 August 2008, groundwater levels were measured between 6 and 8 ft below existing ground surface and do not appear to be influenced by tidal fluctuations in Back Cove.

Groundwater levels may fluctuate with season, precipitation, temperature and construction activities. Therefore, groundwater levels during and following construction may vary from that indicated in the observation wells. Observation well installation and groundwater monitoring reports are provided in Appendix C.



SOIL SCREENING

During the test boring program, samples were collected continuously through the manplaced fill soils. The soil samples were collected and were preserved by placing aluminum foil over the top of each jar and storing them on ice until they were returned to the Haley & Aldrich laboratory in Portland, Maine.

Upon receipt of the samples in our laboratory each sample was screened using a Thermo 580B Photoionization Detector (PID) to check for the presence of hydrocarbons in the soil samples. The results of the sample screening are recorded on the Headspace Screening Report provided in Appendix E.

GEOTECHNICAL LABORATORY SOIL TESTING

A laboratory testing program was conducted to assist in soil classification, evaluate reuse potential of the in-situ fill soils, and for determination of engineering properties (strength and compressibility) of the naturally deposited glaciomarine clay soils. This information will be needed to develop final geotechnical recommendations for the project. The testing program included four grain size analyses, four natural water content tests, six Atterberg Limits tests, and two constant rate of strain consolidation (CRSC) tests (used to determine the compressibility and stress history characteristics). Prior to CRSC testing, radiography tests were conducted on tube samples collected during the subsurface exploration program. Radiography tests were run on five thin-walled tube samples of soil selected for laboratory testing to aid in assessing the sample quality, general material type and presence of areas of disturbance and variations in soils retrieved.

All laboratory testing was completed in accordance with applicable ASTM test procedures. Grain size analyses were conducted by Haley & Aldrich at our laboratory in Boston, Massachusetts. Natural water content, Atterberg Limits, and CRSC tests were completed by GeoTesting Express of Boxborough, Massachusetts. Laboratory test results are provided in Appendix D.

CLOSURE

Based on the "soft" condition of the soils present at the site, impacts of site grading, pavement evaluations and building and utility support should be considered carefully during the design-phase of the project. We will provide foundation support and other geotechnical design recommendations under separate cover during the DD phase of the project.



We appreciate the opportunity to provide geotechnical and environmental engineering services on this project. Please do not hesitate to call if you have any questions or comments.

Sincerely yours,

HALEY & ALDRICH, INC.

Bryan C. Steinert

Engineer

Wayne A. Chadbourne, P.E.

Vice President



Table I - Summary of Subsurface Explorations

Table II - Summary of In-Situ Vane Shear Test Results

Figure 1 - Project Locus

Figure 2 - Site and Subsurface Exploration Location Plan

Appendix A - Historic Subsurface Explorations

Appendix B - Recent Subsurface Explorations

Appendix C - Observation Well Installation and Groundwater Monitoring Reports

Appendix D - Laboratory Test Results

Appendix E - Soil Screening Headspace Reports

Appendix F - Historic Sanborn Maps

c: Scott Simons Architects; Attn: Scott Simon (.pdf only)

Harriman Associates, Inc.; Attn: Patrick Costin, Keith Brenner (.pdf only)

Woodard & Curran; Attn: Barry Sheff (.pdf only)

Becker Structural Engineers; Attn: Todd Neal (.pdf only)

Tewhey Associates; Attn; John Tewhey (.pdf only)

Consigli Construction Co.; Attn: David Thomas (.pdf only)

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REFERENCES

- 1. Haley & Aldrich, Inc. "Report No. 1: Engineering Properties of Foundation Soils, Long Creek-Fore River and Back Cove Area, Portland, Maine," prepared for Maine State Highway Commission, October 1969.
- 2. Haley & Aldrich, Inc. "Report on Phase II Environmental Site Assessment, Union Branch Rail Line Property, Portland, Maine," prepared for Maine Department of Transportation, December 2000.
- 3. Haley & Aldrich, Inc. "Report on Subsurface Explorations & Foundation Design Recommendations, Proposed Bayside Parking Garage, 25 Somerset Street, Portland, Maine" prepared for Scott Simons Architects, 22 September 2006.
- 4. Haley & Aldrich, Inc. "Master Planning Geotechnical Investigation, Proposed Bayside Development, Parcels A and B, Somerset Street, Portland, Maine" prepared for Scott Simons Architects, 25 October 2006



Summary of Subsurface Explorations MaineHealth / United Way Development Somerset and Chestnut Streets Portland, Maine TABLEI

	Estimated			Thickne	Thickness of Strata (ft)			Approx Elevation of	Annrov Flevetion of Approx Flevetion of	Elevation of
Test Boring No. ¹	Ground Surface Elevation ^{2,3}	Bituminous Concrete	Fill	Harbor Bottom Deposit	Glaciomarine Deposit (clay)	Glaciomarine Deposit (sand)	Glacial Till	Top of Weathered Bedrock ³	Top of Competent Bedrock ^{3,5}	Bottom of Exploration ³
HA08-1	11.5	0.1	8.9	5.5	54.5	N	29.5	-87.0	-90.5	-90.5
HA08-2	0.6	띨	14.0	밀	47.0	뮏	5.6	-57.6	-59.7	-59.7
HA08-3	11.0	1.0	11.0	4.1	v 9.1×	뮏	밀	岁	밀	-7.0
HA08-4	12.0	0.5	12.5	3.9	41.9	뮏	5.6	-52.4	-54.0	-54.0
HA08-5(OW)	0.6	밀	10.5	2.5	40.0	뮏	9.5	-53.5	-54.8	-59.8
HA08-6	10.0	밀	12.3	>1.7	뮏	뮏	밀	뮏	밀	4.0
HA08-7(OW)	12.0	밀	12.5	1.5	24.0	뮏	22.1	-48.1	-50.0	-60.0
HA08-8	0.6	밀	9.5	4.3	29.2	5.6	밀	-39.6	41.5	-41.5
HA08-9	11.0	뮏	12.0	2.0	>2.0	뮏	밀	밀	밀	-5.0
HA08-10	0.6	밀	10.0	1.3	23.9	10.3	7	-38.5	-40.5	-40.5
HA08-11	11.0	뮏	12.5	1.7	19.8	12.0	6.5	41.5	-44.0	-44.0
HA08-12(OW)	11.0	뮏	11.6	2.4	>2.0	뮏	밀	밀	쒿	-5.0
HA08-13	9.0	Ä	12.5	밀	27.1	7.0	밀	-37.6	-37.6	47.0
HA06-7	10.5	¥	13.0	밀	51.0	Ä	>3.0	밀	밀	-56.5
HA06-8	12.0	Ä	14.0	밀	33.2	밀	1.6	-39.0	밀	-39.0
B112 (OW)	10.0	Ä	6.6	>2.1	Ш Ш	Ш Ш	Ä	Ä	Ш Ш	-2.0
TP-3	11.0	¥	9.0	>1.5	¥	밀	岁	¥	Ŋ	0.5
TP-4	11.0	밀	12.0	뮏	뮏	밀	뮏	밀	剉	-1.0
TP-5	11.5	뮏	10.5	뮏	밀	뮏	밀	밀	밀	-0.5
TP-6	12.0	Ä	10.0	Ä	밀	×1. 0	뮏	밀	밀	1.0
TP103	10.0	밀	9.5	1.5	Ä	×1.0	뮏	ВZ	Ŋ	-2.0
TP104	10.0	뮏	9.5	밀	밀	>0.5	뮏	밀	밀	0.0
TP105	12.0	밀	>3.5	뮏	¥	밀	밀	밀	밀	8.5
TP117	11.0	뮏	>9.5	뮏	밀	밀	밀	뮏	WZ	1.5
TP118	11.0	밀	>9.0	밀	Ä	밀	뮏	밀	ഴ	2.0
TP119	11.0	뮏	>9.5	밀	¥	밀	뮏	밀	밀	1.5
TP120	11.0	밀	>8.5	뮏	밀	밀	뮏	밀	밀	2.5
TP121	12.0	뮏	>8.0	밀	밀	밀	뮏	밀	밀	4.0
TP122	12.0	밀	10.0	>1.5	밀	뿔	밀	밀	빌	0.5
TP123	10.0	N N	11.0	7.5	W Z	Ш Х	NE	JN	NE	-2.5

¹ Test boring locations are shown on Figure 2, Site and Subsurface Exploration Location Plan.

² Ground surface elevations at test boring locations are approximate and were estimated by interpolating between elevation contour data provided by Woodard & Curran

3 Elevations are in feet and reference Portland City Datum.
4 "NE" indicates stratum was not encountered in test boring.

5 The top of competent bedrock is considered to be the elevation at which the advancement of the roller cone resulted in no additional penetration.

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TABLE II Summary of In-Situ Vane Shear Test Results MaineHealth / United Way Development Somerset and Chestnut Streets Portland, Maine

Test Boring No. ²	Approximate Ground Surface Elevation (ft) ^{1,3}	Vane Size (in. x in.)	Test No.⁴	Depth below ground surface (ft)	Approximate Elevation (ft) ^{1,3}	V _{max} ^{5,7} (in-lbs)	V _{remolded} 5,7 (in-lbs)	S _u 6,7 (psf)	S _{u(remolded)} 6,7 (psf)
HA06-7	10.5	2 x 8.5	FV1	20.3 - 21.0	-9.810.5	-	-	1,680	-
		2 x 8.5	FV2	25.3 - 26.0	-14.815.5	-	-	840	270
		2 x 8.5	FV3	35.3 - 36.0	-24.825.5	-	-	590	110
		2 x 8.5	FV4	40.3 - 41.0	-29.830.5	-	-	580	· 170
		2 x 8.5	FV5	56.0 - 56.7	-45.546.2	-	-	860	-
HA08-1	11.5	2 x 8.5	FV1	25.3 - 26.0	-13.814.5	264	72	900	250
		2 x 8.5	FV2	35.3 - 36.0	-23.824.5	192	96	650	330
		2 x 8.5	FV3	45.3 - 46.0	-33.834.5	204	120	690	410
		2 x 8.5	FV4	56.3 - 57.0	-44.845.5	360	156	1,220	530
HA08-2	9.0	2 x 8.5	FV1	25.3 - 26.0	-16.317.0	180	60	610	200
		2 x 8.5	FV2	35.3 - 36.0	-26.327.0	120	36	410	120
		2 x 8.5	FV3	45.3 - 46.0	-36.337.0	168	48	570	160
		2 x 8.5	FV4	55.3 - 56.0	-46.347.0	144	36	490	120
HA08-4	12.0	3.5 x 8	FV1	22.3 - 23.0	-10.311.0	950	-	1,050	-
		3.5 x 8	FV2	27.3 - 28.0	-15.316.0	540	142	590	160
		3.5 x 8	FV3	30.3 - 31.0	-18.319.0	450	80	500	90
		3.5 x 8	FV4	35.3 - 36.0	-23.324.0	305	45	340	50
		3.5 x 8	FV5	40.3 - 41.0	-28.329.0	360	108	400	120
		3.5 x 8	FV6	45.3 - 46.0	-33.334.0	384	96	420	110
		3.5 x 8	FV7	50.3 - 51.0	-38.339.0	552	72	610	80
HA08-5(OW)	9.0	2 x 8.5	FV1	20.3 - 21.0	-11.312.0	212	75	720	260
. ,		2 x 8.5	FV2	25.3 - 26.0	-16.3 - - 17.0	213	59	720	200
		2 x 8.5	FV3	30.3 - 31.0	-21.322.0	215	51	730	170
		2 x 8.5	FV4	35.3 - 36.0	-26.327.0	175	85	600	290
		2 x 8.5	FV5	40.3 - 41.0	-31.332.0	175	55	600	190
		2 x 8.5	FV6	50.3 - 51.0	-41.342.0	205	109	700	370
HA08-7(OW)	12.0	2 x 8.5	FV1	20.3 - 21.0	-8.39.0	245	95	830	320
` '		2 x 8.5	FV2	25.3 - 26.0	-13.314.0	215	51	730	170
		2 x 8.5	FV3	30.3 - 31.0	-18.319.0	201	82	680	280
		2 x 8.5	FV4	35.3 - 36.0	-23.324.0	255	62	870	210
HA08-8	9.0	3.5 x 8	FV1	18.3 - 19.0	-9.310.0	420	60	460	70
		3.5 x 8	FV2	22.3 - 23.0	-13.314.0	552	48	610	50
		3.5 x 8	FV3	30.3 - 31.0	-21.322.0	346	108	380	120
		3.5 x 8	FV4	35.3 - 36.0	-26.327.0	708	132	780	150
		3.5 x 8	FV5	39.3 - 40.0	-30.331.0	936	72	1,030	80
HA08-10	9.0	3.5 x 8	FV1	19.3 - 20.0	-10.311.0	468	96	520	110
		3.5 x 8	FV2	23.3 - 24.0	-14.315.0	660	120	730	130
		3.5 x 8	FV3	27.3 - 28.0	-18.319.0	360	84	400	90
		3.5 x 8	FV4	30.3 - 31.0	-21.322.0	204	62	220	70
HA08-11	11.0	2 x 8.5	FV1	25.3 - 26.0	-14.315.0	215	50	720	170
HA08-13	9.0	2 x 8.5	FV1	20.3 - 21.0	-11.312.0	199	50	670	170
		2 x 8.5	FV2	25.3 - 26.0	-16.317.0	174	71	590	240
		2 x 8.5	FV3	30.3 - 31.0	-21.322.0	82	75	280	250
		2 x 8.5	FV4	35.3 - 36.0	-26.327.0	215	64	720	220

- Notes:

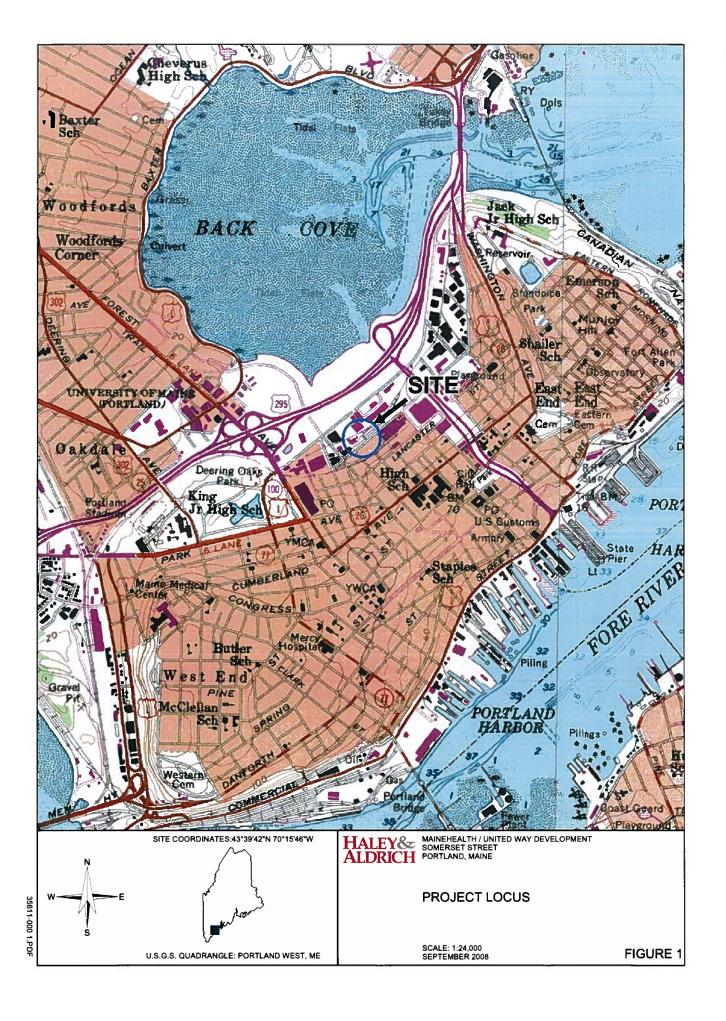
 1. Estimated ground surface elevations are based on interpretation of the site plans prepared by Woodard & Curran (measured to the nearest 0.5 ft).

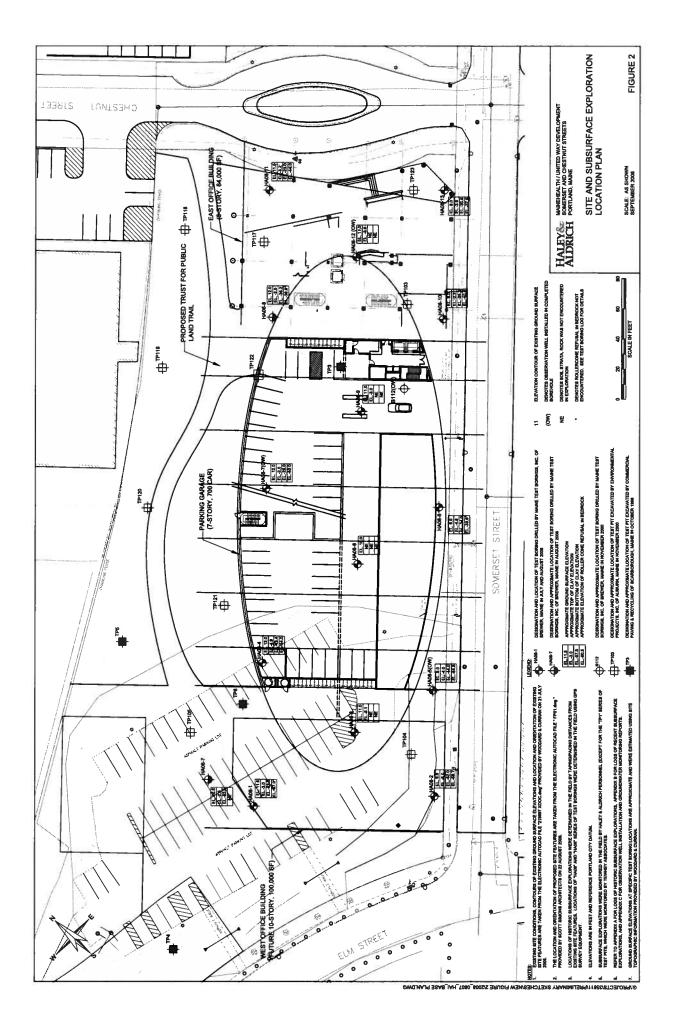
 2. Test boning locations were determined using GPS equipment and/or by taping and pacing from existing site features.

 3. Elevations are measured in feet reference Portland City Datum.

- Vance test numbers are shown on the test boring logs presented in Appendix A and B.
 V_{max} and V_(remoled) represent direct peak and remolded vane shear values, respectively, measured in the field.
 S_u and S_{u(remoled)} represent corrected undrained peak and residual shear strengths, respectively, based on the vane paddle size (rounded to the nearest 10 psf).
 in-lbs = inch-pounds of torque, psf = pounds per square foot







APPENDIX A

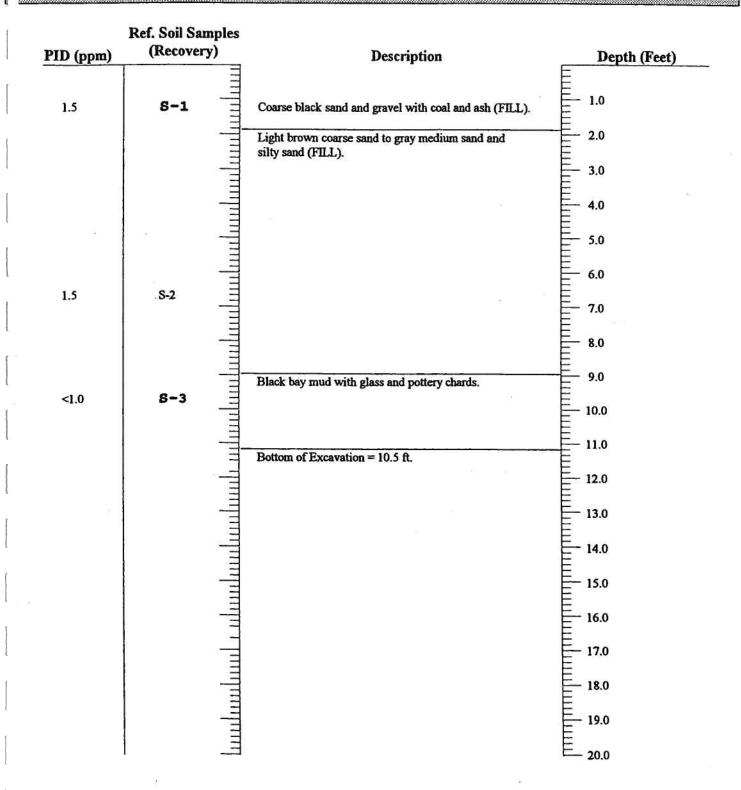
Historic Subsurface Explorations



1998 Portland Brownfield's Project Test Pit Logs

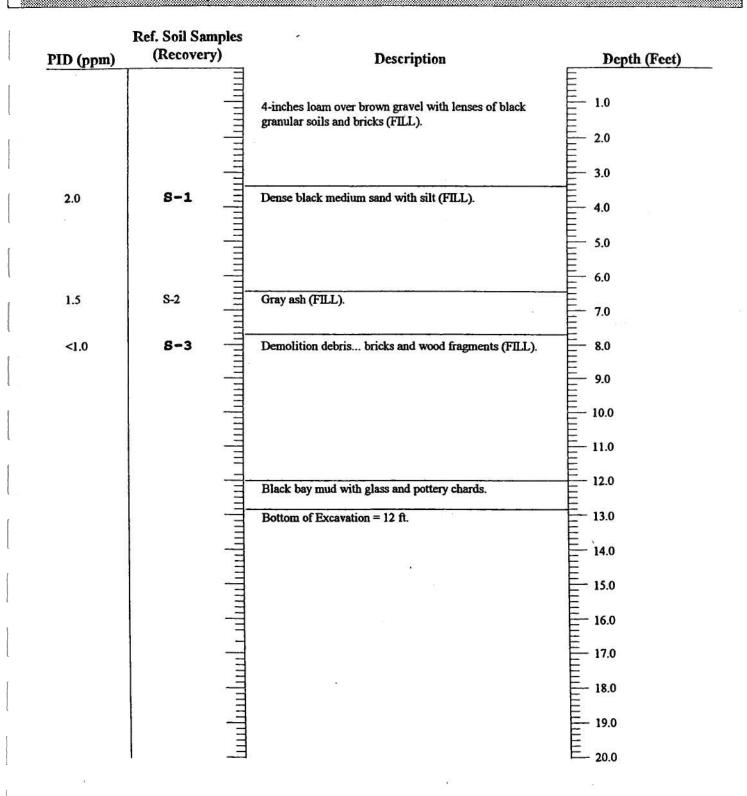


TEWHEY ASS	SOCIATES	TEST PIT LO	OG _
ROJECT:	Portland Brownfields- Portland Terminal	BACKHOE:	Commercial Paying
PROJECT NO:	97-005		
DATE:	10-29-98	NO:	TP-3
NVESTIGATO	R J. Tewhey	LOCATION:	Middle of Site



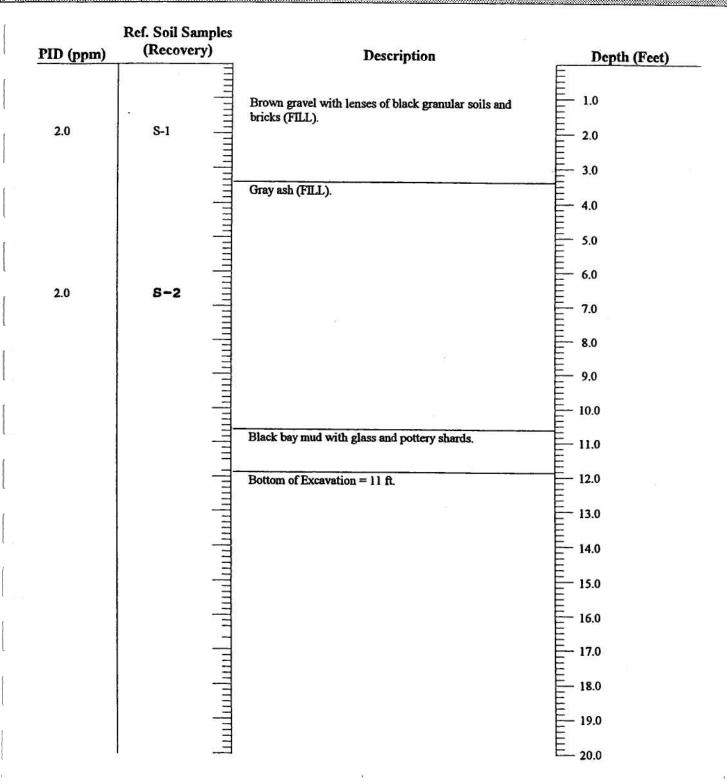
Comments:	Sample ID in bold indicates soil sample was submitted to laboratory for analysis.
Water Table Present:	Wetness observed at 4 ft below ground surface.

TEWHEY ASSO	CIATES	TEST PI	TLOG	
'ROJECT:	Portland Brownfields- Port	land Terminal BACKHO	E: Commercial Paying	
PROJECT NO:	97-005			
DATE:	10-29-98	NO:	TP-4	
NVESTIGATOR	J. Tewhey	LOCATIO	ON: West Side of Site	



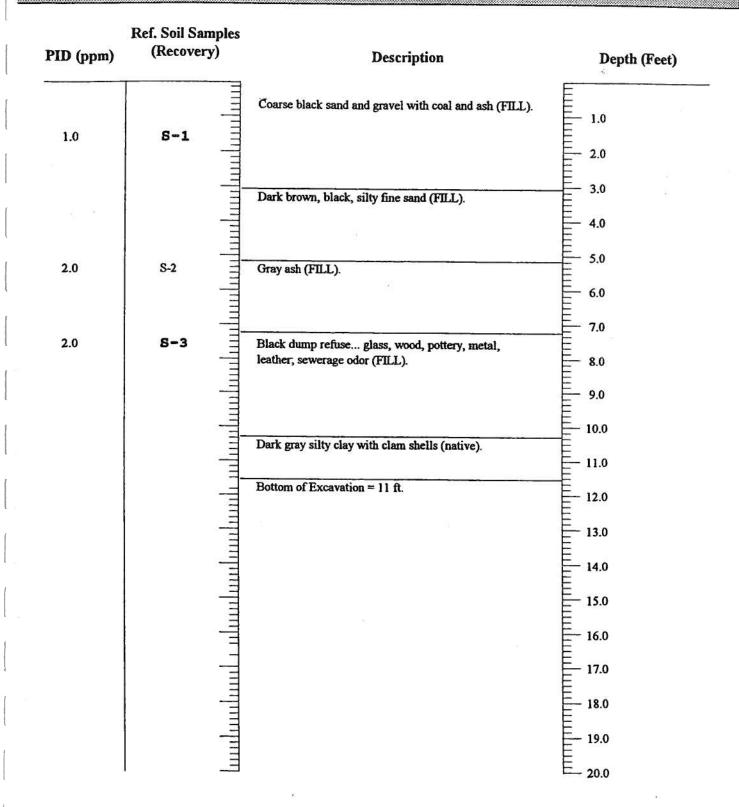
Comments:	Sample ID in bold indicates soil sample was submitted to laboratory for analysis.
Water Table Present:	Wetness observed at 7 ft below ground surface.

TEWHEY ASSO	OCIATES	TEST PIT	TLOG	
ROJECT:	Portland Brownfields	- Portland Terminal BACKHO	E: Commercial Paying	
PROJECT NO:	97-005			
PATE:	10-29-98	NO:	TP-5	
NVESTIGATOR	I. Tewbey	LOCATIO	N: West Side of Site	



Comments:	Sample ID in bold indicates soil sample was submitted to laboratory for analysis.
Vater Table Present:	Wetness observed at 4 ft below ground surface.

TEWHEY ASSOCIATES TEST PIT LOG Portland Brownfields- Portland Terminal PROJECT: BACKHOE: Commercial Paving 97-005 PROJECT NO: 10-29-98 DATE: NO: TP-6 INVESTIGATOR J. Tewhey West Side of Site LOCATION:



Comments:	Sample ID in bold indicates soil sample was submitted to laboratory for analysis.
Water Table Present:	Wetness observed at 5 ft below ground surface.

2000 Phase II Environmental Site Assessment Test Pit and Test Boring Logs



	HA ALI	LEY& DRICH			TE	ST PIT LOG	;			T	Test Pit No. TP103							03	8
	ľ	ject		ranch Ac	quisition					File	e No	 o.	-	80)50	9-01	4		
	Loc	ation	Portland,							Da	ła.							000	_
	Clie			.	of Transporta	ation	•				••			20	140	vem	ber :	200)
		ntractor			jects, Inc.					We	ath	er		C	lou	đу			
	Equ	ipment U	sed Ko	omatsu Ex	cavator 0.75	Cubic Yard Bucket				Н&	A R	ер		J.	Te	whe	y		
		und El.:	ft		Location:	See Plan	Gr	oundwater dep apid from -HAF	ths/entry	rates	(in	/m	in.):		Vat	er ir	ıflov	v is	
	EI. (Datum:	T		V.		W	Vater slow at 3.	0 ft.(perc	hed),	rapi	d a	t 10	0.0	ft.				
	€		Stratum	USCS	Vie	sual-Manual Identi	ification	n and Dagaria		-	ave		San				Field	Tes	_
ŀ	Depth (Sample	Change Depth (ft)	Symbol	1	ity/consistency, color, (•		Coarse	Fine	oarse	% Medium	e e	% Fines	Dijatancy	Toughness	Plasticity	£
	- 0		Dopar (it)		structure,	odor, moisture, optiona	al descri	ptions, geologic i	nterpretation	on) s	% F	ა %	%	% F	% F	Dijat	Toug	Plas	Strength
	U	103-1 0'	0.5	~~~		-RAILYARD F	•	•									_		
		103-2 1'		SW	bed materia	n well-graded SAND, l as in 103-1	few len	ises of dark gran	ular rail			10	80	5	5				
						-SANI	FILL-												
Ì	- 2	1	2.0	ML	Olive-gray of	clayey SILT with sand	d and gr	avel, medium st	iff	+		_	\vdash	-	7	\dashv			
		103-3			**	-CLAYEY	SILT F	ILL-							Ì				
1		3'													1		l		
ŀ	4 -	-	4.0	ML	Grav clavev	SILT with sand, very	v soft			_		_		_	_				
ı					-1.5, 5,6,	-CLAYEY		17 7				2.5	88			ı			
		103-4				-CLATET	SILI F.	ILL-								ĺ			
L	6 -	5.5'										ĺ							ļ
	U																	ļ	
					ı														
																		Ì	
ŀ	8 -												ı						
١												l	İ						
		103-5	9.5									ĺ							
-	10 -	9.5'	7.5		Black-brown	organic material with -HARBOR BOTTO	h some	clay OSIT-(FILL)						1					
								· -/											
1		103-6 11'	11.0	CL	Olive-gray le	ean CLAY with silt, t	race me	dium sand, med	ium stiff.	+		4		+	\perp	_	\dashv		_
					presence of o	clam shell fossils is di ARINE DEPOSIT-	agnostic	of -NATIVE S	OILS-								İ		
T	12 -		12.0			xploration at 12.0 ft.				-	7	+	+	\dagger	+	\dashv	\dashv	\dashv	\dashv
		52																	
8 Dec 00																			
Ę-	Nh - *			<u>_</u>												\perp			\exists
	Jostri	ictions:		Rema	irks:		,	Dilatancy	F	Field - Rap		_	Slow		1 - N	one			ᅱ
ZECT								Toughness Plasticity		Low	М-	Me	dium	ı F	1 - H	ligh	H	liah	
<u></u>		04	M-4		24		Da.:1-1-	Dry Strength N	- None L	- Low	М-	Ме	dium	ı H	I - Hi	igh	V - V	ery F	ligh
G:GINTWNEWVER~1PROJECTS/8050914T.GPJ	at c	<u>Standing</u> lepth	Water in C	<u>ompleted</u> ft	<u>Pit</u>	Diameter (in.) No	<u>Boulde</u> umber	e rs Approx, Vol. (cu.ft)	D:: =			it D				(ft)		
Ž		asured aft	er		ours elapsed	12" to 24" over 24"	_	=		Pit D Pit L	•		c Wi		12.0) x 1	4.0	
<u>ş</u>			IOTE: Soil id	entification	n based on visu	ial-manual methods of	the US		cticed by		_							_	ᅱ

	HA ALI	LEY & DRICH			TI	EST PIT LOG	3		7	Tes	t F	Pit	No	No. TP104				
	Loc	ject ation	Portland	, Maine	cquisition					e N	о.			 509-				
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		itractor			rojects, Inc.				We	ath	er	70	Cl	oudy	,			
	Equ	ipment U	sed K	omatsu E	excavator 0.75	Cubic Yard Bucket			Н8	A F	₹ер		J.	Tew	hey			
		und El.: Datum:	ft		Location:	See Plan	G	roundwater depths/entry from ash at 6.0 ft., has sli	rate: ght s	s (in heer	ı/m	in.):	W	ater	eme	rges		
	€		Stratum							rave		San		T	Fie	ld Te	st	
	Depth	Sample ID	Stratum Change Depth (ft)	USCS Symbo) (Dens	sity/consistency, color.	GROUP	on and Description NAME, max. particle size, riptions, geologic interpretations.		Fine	Coarse	Medium	% Fine	Fines	Toughness	Plasticity	Strength	
F	0 -	104-1	-			e coal ash mixed with		ilty LOAM	on) 8	8	%	%	%	% <u>c</u>	5 F	1 6	ts	
		0.5'	1.5															
-	2 -	1.5'		ML	Olive-gray	clayey SILT with san -CLAYEY							7		1	\dagger		
l			2.5		Gray, coars	se coal ash				╁		\dashv	-	+	+	+	+	
						-ASF	H FILL-											
ľ	4 -										Si							
ŀ	6 -		6.0		Dark brown	to black heterogeneoush and clayey SILT	ous mix	of ash, organic marine	-		4	+	-	-	ig	-		
		104-3 7'			deposit, tras	-ASH AND R	REFUSE	E FILL-										
-	8 -																	
		104-4 9'			Black staine leather, met	d coarse COAL ASH al, shell, wood	with tra	ash, glass, ceramic,										
			9.5	CL	Olive-gray l	ean CLAY with silt	·					+	+	-	╄	ļ	igspace	
İ	10		10.0		· †· 、	-MARINE xcavation at 10.0 ft.	DEPO	SIT-	, 								 	
			Sa.															
O	bstru	ctions:		Rem	arks:				Fiel						=		目	
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								Plasticity N - Nonp Dry Strength N - None L	lastic	L-1	Low	М	- Me	dium	H-	High Very	Hiah	
		-	Water in C	ompletec	d Pit	Diameter (1)	Boulde	ers		_	_	_			ns (ft		9."	
		epth asured afte	7.5 er 0.25	ft		12" to 24"	lumber	=	Pit D					0.0				
	mea				ours elapsed	over 24"	f the He	= CS system as practiced by h	Pit L					4	1.0 x	14.0	<u>'</u>	
_			L. GOII N		Deser On VISI	ai-manuai methods o	the US	Co system as practiced by I	laley	& A	dric	h. Ir	IC.					

		EY& DRICH			TE	ST PIT LO	G			7	es	t P	it N	ło.	7	ΓP1	05	
	Pro	ject ation			cquisition					File	e N	 -	-	8050	——)9-0	14		
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		ipment U			_	Cubic Yard Bucke	~*			We	atn	er		Clou	ıdy			
		-				Cubic Tard Buck				Н&				J. T	ewh	y		
		ınd El.:	ft		Location:	See Plan	G	roundwater depths	/entry	rates	in	/mi	n.):					
	 	atum:	Τ							-1								
	(£)		Stratum	uscs	i Vi	sual-Manual Ide	ntificatio	on and Description	1	\vdash	rave	J	Sand			90	Test	Ţ
	Depth	Sample ID	Change Depth (ft)	Symbo)I (Dens	ity/consistency, cold	or. GROUE	P NAME may nadicle	ciza	Coarse	<u>e</u> .	% Coarse	lediu	% Fine % Fines	Dilatancy	Toughness	Plasticity	ag g
	- 0 -				structure,	odor, moisture, opti	onal desc	riptions, geologic inten	pretatio	n) 8	8	%	%	% % r r	<u>S</u>	10 E	Plas	Strength
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ĺ						-MI	XED FIL	L-										
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S EC								Plasticity N	I - Nonp					H-I Medi	-	H-F	ligh	
G:GINTWNEWVER-1PROJECTS8050914T,GPJ		Standing	Water in C	omplete			Bould	Dry Strength N - No			М -	Med	lium	H-1	ligh	۷-۱	ery H	igh
EWE	at d	<u>standing</u> epth	Maral III C			Diameter (in.)			<u>ft)</u>	Pit D			t Dif	nens		<u>s (tt)</u>		ĺ
<u> </u>		asured after	ft Boulders Diameter (in.) Number Approx. Vol. (cu.ft)										Wid	3.5 lth		0 x :	10.0	
9		N	IOTE: Soil id	entification	on based on visu	al-manual methods	of the US	SCS system as practic									_	ᅱ

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Clie	nt tractor		•	it of Transport ojects, Inc.	ation				W	ath	or			lear	CILIO	C1 2(
	ipment U			-	Cubic Yard Bucket				Н8						.1		
Grou	und El.:	ft	T	Location:	See Plan	G	Froundwater de	oths/entry							vhey		
EI. D	atum:	1		- 			slowly at 5.0 ft.			•					. 0141	or my	s pa
£		Stratum	uscs	Vi	sual-Manual Iden	tificatio	on and Descri	otion	_ <u> </u>	irave	+	Sar		-		eld T	est
Depth (ft)	Sample ID	Change Depth (ft)	Symbo	(Dens	sity/consistency color	GROUI	PNAME may na	diclo cizo	on)	Fine	% Coarse	Mediur	Fine	% Fines	Dilatancy	onghness	Plasticity
0 -	117.1			Sudcture,	odor, moisture, option			nterpretation	on) 8	8 8	8	8	%	%		<u>•</u>	=
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2 -																	
	117-2			Light brown	n to brown poorly are	adad	-d 0.05 '	*.0									ł
				wavy lenses	s of dark brown sand	aded sai	na, mps= 0.25 1	n. with		5	10	80	5				
4	Light brown to brown poorly-graded sand, mps = 0.25 in. with wavy lenses of dark brown sand -SAND FILL- 5.0																
		5.0							-				\downarrow	1	_	\downarrow	1
6 -																	
				Olive-gray	clayey SILT with san	a											
	117-3			Onve-gray (-CLAYEY		FII.J.		İ		5	5	30 0	50			
8 -	7.5'																
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							Plasticity Dry Strength	N - Nont I - None L						ediun - Hig		- Hig - Ver	
at d		Water In C				<u>Bould</u> lumber		(cu.ft)	D:			it D			ns (t)	
	asured afte		h	ours elapsed	12" to 24" over 24"		=		Pit L	eng	th x		idth		4.0	t 11	.0
	epth asured afte	er	ft h	ours elapsed	12" to 24"	lumber	Plasticity Dry Strength N ers Approx. Vol. = =	N - Nonp I - None L (cu.ft)	Pit D	M- Tes epti	Low Me st P n th x	dium it D	ime	ediun - Hig nsic 9.5	n H h,∨ o ns (- Ver	y F

	HA ALI	LEY& DRICH				7	Гes	st F	Pit	No).	T	P1	18	-			
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		itractor			ojects, Inc.	a			₩€	ati	ner		C	lear				
	<u> </u>	ipment U		omaisu E	xcavator 0.75	Cubic Yard Bucket			Н8		•			Tev		-		
	1	und El.: Datum:	ft		Location:	See Plan	G	Froundwater depths/entry seeping at 6.5 ft.	rate	s (ii	ı./m	in.)	: 1	Vate	r sl	owl	y	
	£		Stratum	uscs	\6	ouel Menual Ida es	· •		G	rave		Sar			- 1		Test	_
	Depth	Sample	Change Depth (ft)	Symbol	ı .!	sual-Manual Identif		· ·	n) %	B 8	% Coarse	ediun	e	Se S	ancy	Toughness	cit	g
	0		Depar (it)		structure,	odor, moisture, optional	descr	P NAME, max. particle size, riptions, geologic interpretatio	n) 2	5 iī	. v	%	% Fi	% Fines	Dilatancy	Toug	Plasticity	Strength
			0.5		Brown sand	ly loam with organics a	ınd ro	oots	I		T							=
						-SILT	FILL	-	/	T								_
	- 2 -	118-1 2.5'			Olive-brown	FILL, stiff, becomimg	4		5									
	- 4 -		-CLAYEY SILT FILL-															
							. (Q											
	6 -		6.5															
-			6.3		Olive-brown	h	\top			\exists	\forall	+	\dagger	\dashv	+	_		
	8 -	118-2 7.5'				-SAND	FILL	-										
			8.5	SM	Black silty S	AND			10	5	5	15	40 3	25	+	4	4	_
			9.0		Bottom of E	xcavation at 9.0 ft.			+	-			-	+	+	\dashv	+	4
ON SECTION																		
- 1																		
<u> </u>	Obstru	ctions:	<u> </u>	Rema		Field	d Te	sts			1/22	12		_	\exists			
CANADA PARACANA IN TOUR CONTROL SANGER A LINE CONTROL OF CONTROL O				settin	g for a few m			Toughness L - I Plasticity N - Nonel Dry Strength N - None L -	Rapi ow astic	id M	S - S Me	Slow dium M dium	- M	l - No l - Hig ediun - Hig	gh n l	H - H V - V	igh ery Hig	
N C	المقم		Water in C				ould nber	ers						nsic	_			٦
A		epth asured afte	er	ft ho	ours elapsed	12" to 24"	,1001	=	Pit D	•		, \ A/:		9.0	4 Λ	x 1	2 N	
ا ۋُ						over 24" ral-manual methods of the	he US	CS system as practiced by H							4.U	X I		\dashv

	HAI ALI	LEY& DRICH			TI	EST PIT LOG				Te	sti	Pit	No).	T	P1:	 19	-
	Loc Clie Con	ject ation nt itractor ipment U	Portland Maine D Environr	, Maine epartmer nental Pr	ecquisition of Transport rojects, Inc.	tation Cubic Yard Bucket			D: W	ate eat	No. her		21 C	Nov lear		ber 2	2000	
		und El.:)atum:	ft		Location:	See Plan	Gi	roundwater depths/entry rom ash at 6.0 ft.							-		 ges	_
	O Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbo) (Dens	isual-Manual Identif sity/consistency, color, G odor, moisture, optional	ROUP	n and Description NAME, max. particle size, iptions, geologic interpretation		% Coarse	% Coarse	San medium %		% Fines	Dilatancy	Toughness a	Plasticity	Strength
	- 2 -	119-1 1' 119-2 2'	1.5		Gray coars	rn to brown well-graded -SAND e coal ash with lenses of a sand (as in 119-1) -ASH	FILL f black	k railroad yard soils and	/									_
	- 4 -	119-3 4.5'			Gray coarse glass, brick	e coal ash with mixed tr , ceramics, leather, me	ash, al	ll stained jet black, ood			ge ·	=						
	8 -	119-4 7'				-ASH AND RE	FUSE	EFILL-										
23 B Dec 00			9.5		Bottom of E	excavation at 9.5 ft.												
G. GEIN I WATERWERT THE COLOR OF THE COLOR O	Obstruc	ctions:		pron (cold	ninent petroleu I weather may			Toughness L - Plasticity N - Nonp Dry Strength N - None L	- Rap Low lastic	oid M L -	- Me Low - Me	dium M dium	Н - М е	- Hig	gh n H lh V		gh ery Higl	
G. WIN I WWWE WWE.	at de mea	epth asured afte		ft h	ours eiapsed	<u>Diameter (in.)</u> Nur 12" to 24" over 24"	_	Approx. Vol. (cu.ft)	Pit E	en;	gth x	: Wi	g dth	9.5	4.0		4.0	

HA	LEY& DRICH		<u>.</u> .	TE	ST PIT LOG			T	es	t F	Pit	No		TP	120)
				cquisition				File	∍ N	0.		80	509-	014		
			-	-4 -6 T · ·	.•			Dat	te			21	Nove	mbe	- 200	20
					auon			\A/_	-41-						200	,,,
					Cubic Yard Bucket		ł	We				CI	еаг			
					Cubic Tard Bucker	T		H&.		•			Tew	•		
		ft		Location:	See Plan	Groundwater depths/e rapidly from 6-7 ft.	entry ra	ates	(iņ	./m	in.):	7	ater	ent	ering	pi
	atum:					Tapatay nom o / It.		1-								
Depth (ft)		Stratum	uscs	Vi	sual-Manual Identific	ation and Description			ave	_	San		-		d Te	Τ
ept	ntractor Environment uipment Used Koma und El.: ft Datum: Stratum		Symbo	a İ		OUP NAME, max. particle s	•	% Coarse	% Fine	oars	% Medium	ē	nes	Distancy	je	<u>)</u>
0 -				structure,	odor, moisture, optional d	escriptions, geologic interpr	etation) S	% F	8	∑ %	% Fine	% Fines		Plasticity	
v	ent Maine Depentractor Environment uipment Used Kontound El.: ft Datum: Sample ID Stratum Change ID Depth (ft) 120-1 0' 0.5 120-2 1' 2.5			Light brow	n poorly-graded SAND,	mps = 0.25 in., grass, roo	its		\sqcap			5	5		7=	Ŧ
		0.5											1	1	1	\dagger
	1'			ŀ	-RAILYARD FILI	L- (See 101-1)								-		
2												- [
		2.5						<u> </u>				\downarrow	\perp		_	L
										ļ						
4 -												1				
	120-3															l
				Gray coarse	coal ash							1				
6		5			-ASH FI	LL-					i					
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	Sample Stratum US Syn															
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8 -												ļ				
	Sample Change Depth (ft) Syn			Bottom of E	xcavation at 8.5 ft.			-	\dashv	4	4	+	+	_	ļ	L
	120-3				×				1							
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bstru	ctions:			arks: Sligi	ht petroleum sheen on petroleum odor	Dilatancy		Field		_	No:		%) M			- 4
					F-motomit odol	Toughness	L-Le		М-	Med	muit	Н	- Nor - Hig	h		
	•					Plasticity N - Dry Strength N - None	Nonpla e L-L	stic .ow	L-L M-	.ow Med	M muit	- Me	dium - Hiat	H- 1 V-	High Very	Hiol
	-		ompleted	i Pit		ulders								ns (fl		
at d	•		ft		<u>Diameter (in.)</u> Numl 12" to 24"	<u>Der Approx. Vol. (cu.ft)</u> =	ן ף	it De					3.5			
mea				ours elapsed	over 24"	=		it Le						1.0 x	13.0	_
	N	OTE: Soll id	entificatio	n based on visu	ial-manual methods of the	USCS system as practiced	by Ha	ley a	& Al	dric	h, Ir	nc.				Ξ

	HAI ALI	LEY &		 .	TE	ST PIT LOG	;			Гes	st F	Pit	No).	T	P12	21	
	Pro				cquisition				Fi	le N	lo.		80	0509	-014	 4		
		ation	Portland,						Da	ıta						т оег 2	2000	
	Clie			-	nt of Transports	ation										er 2	2000	
		itractor ipment U			rojects, Inc.	Cubic Yard Bucket			W	eath	ner		С	lear				
			· · · · · · · · · · · · · · · · · · ·	Jillatsu E		Cubic Tard Bucket	r			A F				Tev	vhey			
		und El.: latum:	ft		Location:	See Plan	Gr	oundwater depths/entr	y rate	s (ji	ı./m	in.)	:					
Ì	€		Stratum	11000	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		• •		G	rave		Sar			F	ield	Test	
١	Depth	Sample	Change	USCS Symbo	a l			n and Description		% Fine	arse	ging	9	% Fines	ancy	Toughness	city	£
	<u>ă</u>	10	Depth (ft)		structure,	ny/consistency, color, odor, moisture, optiona	GROUP al descri	NAME, max. particle size, ptions, geologic interpretati	ion)	Fine 8	8	% W	% Fir	% Fir	Dilat	Toug	Plasticity	Strength
	- 0 -				Brown silty	GRAVEL with sand	, grass,	roots	4		10	10	10	15	\exists	Ħ		=
		121-1			3	GRAVI	el fili	L-										
		1'														-		
ŀ	2 -	121-2 2'	2.0			-RAILYARD F	गा । - (९	ee 101-1)		\bot					_	_	_	
		_	2.8				122- (3											
١			12.00 12							5	10	80	5					
	4 -																	
	4	121-3			Light brown	n to brown well-grade rk brown sand	d SANE	O, mps = 0.25 in., wavy		L	= :							
1		4.5'			lonsos or da		. Eur											ł
١						-SANI	FILL-	•					-					l
ŀ	6 -		ļ															
		121-4 7'	7.0		Olive-gray c	alyey SILT with sand	l and gra	avel	5	5	5	5	20	60		+	4	\dashv
					Note: Log p	-CLAYEY latform at 8.0 ft.	SILT F	ILL-										
ľ	8 -		8.0			xcavation at 8.0 ft.			\top	+			\dashv	\dagger	+	\dagger	\dashv	\dashv
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Š		ctions:	Wooden		arks:			Dife		d Te				90	II	_		ゴ
200			r road at 8.0 ore digging.	۱ ۱				Toughness L	R - Ra _l - Low			Slow dium		1 - No 1 - H				-
3								Plasticity N - Nor Dry Strength N - None L					1 - M	ediu	'n ł	H - Hi V - Ve		igh
ZER-1		Standing	Water in C	omplete	d Pit		Boulde	ers	3.54		_		_		ons		, · · ·	۳
WEN		epth		f		<u>Diameter (in.)</u> No. 12" to 24"	<u>umber</u>	Approx. Vol. (cu.ft)	Pit [8.0				
G:GINTWANEWVER~1VPROJECTS/8050914T.GPJ	me	asured afte			ours elapsed	over 24"	E AL - 1	=	Pit I						4.0	x 1	1.0	
5 L			O IE. 3011 10	enuncado	Dased on VISU	ai-manuai methods of	the US	CS system as practiced by	Haley	& A	ldri	ch, l	nc.					

	HAI ALD	EY& DRICH			TE	ST PIT LOC	3		Т	es	t P	it I	No.	7	Γ P1 :	22	
	Proj			ranch Ac	quisition				File	∍ No	 o.		805	09-0	 14		
		ation	Portland,						Dat	te			21 N	loven	nber :	2000)
	Clie	nt tractor		_	of Transporta	tion			We	ath		•	Cle			2000	•
i		ipment U			-	Cubic Yard Bucket											
		and El.:			Location:				H&.					rewh			
		atum:	ft		Location.	See Plan	sle	oundwater depths/entry owly at 3.5 ft.		10.		in.j:	w	ater s	eepir	ng	
	(£)		Stratum	USCS	Vie	sual-Manual Iden	itification	and Description	\vdash	ravel	Щ.	San		-	Field		1
	epth	Sample ID		Symbol				•	Coarse	% Fine	oars	% Medium	e .	% Fines Dilatancy	Toughness	Plasticity	Strength
	- 0 -	Sample Change Depth (ft) Symbol (Density/consistency, color, GROUP NAME, max. particle s structure, odor, moisture, optional descriptions, geologic interpr									0 %	%	% ;	» Gila	뤋	Plas	Stre
						-RAILYARD	FILL- (S	ee 101-1)									
		0.3		Н			-	+									
	•	122-2	-														
	- 2 -																
		Olive-gray clayey SILT with sand and gravel (sand lenses shed											_				
		Olive-gray clayey SILT with sand and gravel (sand lenses shed water into pit)															
ı	- 4 -		ILL-														
											39	ĺ					
ŀ	- 6 -		6.0		Olive-gray t	o gray coarse SANI) with silt	t, some ash and marine		$\left \cdot \right $	4	\dashv	+	-		_	\dashv
					organics fro	m former back cove	bottom	•									
						-SANDY I	MIXED F	ILL-									1
-	8 -	122-4 8'	İ														
Ì		°															
		1														Ì	
	10 -		10.0				14									_	
-		122-5 10.5'	10.0	CL	Native clay	deposits (See 107-4)					1						
Ì		10.5				-MARIN	E DEPOS	SIT-			:						
			11.5		Bottom of E	xcavation at 11.5 ft.			_			-+		+-			\dashv
		1			1												
8																	- 1
12 Dec 00																	
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50914T.	Obstru	ctions:		Rema		er draining from sa	and lense		Fiel	d Te	sts						
CTS/80				betwe	een clay layer	s at 3.5 ft.		Dilatancy	R - Rap Low					- None - High			
PROFE									nplastic L - Low								-ligh
WER-1			Water in C			Diameter (in)	Boulde	ers							s (ft)		Ť
G:/GINTWMEWVER-11PROJECTS/8050914T,GPJ		lepth asured aft	er	ft he	ours elapsed	12" to 24"	<u>Number</u>	Approx. Vol. (cu.ft) =	Pit D Pit L			, \ \ /i		1.5	.0 x 1	12 0	
GIGIN						over 24" ual-manual methods	of the US	= CS system as practiced by		_				-	. J A	-2.0	\dashv

	HAI ALL	EY& ORICH			TE	ST PIT LOG			Т	es	t F	Pit !	No).	T	'P1	23	
	Proj				cquisition		-		File	e No	٥.		80)509	 9-01	4		
		ation	Portland,						Dat	le.			21	No	vem	ber :	2007	1
	Clie				t of Transporta	ition								_		DCI .	2000	,
		tractor			ojects, Inc.	Cubic Yard Bucket			We	ath	er		С	lear	•			
	Equi	ipment U	Н&.	A R	ep		J.	Te	whe	y								
		ind El.: atum:	ft		Location:	See Plan	Gro	oundwater depths/entr	y rates	(in	./m	in.):	:					
	£												ıd			Field	Tes	t
١	ř.	Sample			Vis	sual-Manual Identif	ication	and Description	9		Se	% Medium		စ္ဆ	Š	Toughness	₽	£
1	Depth			Эутьо	(Densi	ity/consistency, color, G	ROUP N	NAME, max. particle size,	Coarse	% Fine	S	Zee	Fine	% Fines	Dilatancy	ngh.	Plasticity	Strength
F	0 -	123-1			Sudctore,				ion) 😹	8	8	8	%	%	٥	۲	<u> </u>	ठ
		0'			1	1011511111011	DD- (DC	æ 101-1)										
ı			1.0		Light brown	well-graded SAND			+	-	5	80	10	5	_			
			1.5		Olive-brwor	n clayey SILT with sar	d and g	gravel, dry, stiff		+		Ħ		7	\dashv			-
ſ	2 -	1.5	2.5			-CLAYEY	SILT FI	ILL-										
			2.3		Olive-gray o	clayey SILT with sand	and gra	ivel, wet, soft		\vdash				\dashv				
-						-CLAYEY	SILT FI	LL-										
-	4 -	123-4																
		4'									. =					İ		
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ŀ	6		6.0		Gray coarse	coal ash				\vdash				+		\dashv	\dashv	
		123-5				-ASH 1	TIL.											
		7'																
	8 -															-		
			8.5		<u> </u>													
١		123-6 9'	96		metal, brick													
		9				-ASH AND RE	FUSE	FILL-								İ		-
┢	10															İ		
		100 7																
		123-7 11'	11.0	CL	Native clay	deposits (See 107-4)		-		H	\dashv	\vdash	\dashv	+	\dashv	-	-	\dashv
	12		ļ			-MARINE I	DEPOSI	IT-										-
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			12.5		Bottom of E	xcavation at 12.5 ft.	-											\neg
12 Dec 00																		
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<u></u>	NA CO									<u> </u>								
6669 6669	bstru	Dilatancy R - Toughness L - t Plasticity N - Nonpla									sts S -	Slow	v 1	N - N	lone			\dashv
VECTS		Dilatancy R - F Toughness L - Lo Plasticity N - Nonplas										diun	n	H - F	ligh	ш.	lick	
- 188		Standing Water in Completed Pit epth ft Dilatancy R - R Toughness L - Lo Plasticity N - None L - Lo Boulders Diameter (in.) Number Approx. Vol. (cu.ft) Pit 12" to 24" Dilatancy R - R Toughness L - Lo Plasticity N - None Plasticity N - None Plasti										diun	n I	1 - H	ligh	۷-۱	/ery l	ligh
G-GINTWNEWVER~1PROJECTS/8050914T.GPJ	ام دی		Dilatancy R - F Toughness L - Lo Plasticity N - Nonplas Dry Strength N - None L - Lo Standing Water in Completed Pit pth ft Diameter (in.) Number Approx. Vol. (cu.ft) 12" to 24" = Pi													s (ft)		
TANKE T		•	Plasticity N - Nonplate Dry Strength N - None L - Note L - Note Dry Strength N - None L - Note Dry Strength N - Note Dry Stren												5 4.	0 x 1	14 N	
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HA	Casing Sampler Barrel Drilling Equipment and Procedures Finish Driller Fini							ng	N	ο.		B1	12							
Clie	ent	Union Branch Rail Line Property Portland, Maine Maine Department of Transportation Maine Department of Transportation Maine Test Borings, Inc. Casing Sampler Barrel Drilling Equipment and Procedures Bit Type: HSA S - Rig Make & Model: Mobile B47 Bombardi Bit Type: Drill Mud: Casing: Hoist Home Winch / Doughnut Hammer:								SI	hee tart	et N	lo. 17	1 c	of 1	014 l mbe				
		TEST BORING REPORT It Union Branch Rail Line Property Portland, Maine Maine Department of Transportation Maine Test Borings, Inc. Casing Sampler Barrel Drilling Equipment and Proceding Maine Test Borings, Inc. Casing Sampler Barrel Drilling Equipment and Proceding Maine Test Borings, Inc. Casing Sampler Barrel Drilling Equipment and Proceding Maine Test Borings, Inc. Casing: HSA S - Rig Make & Model: Mobile B47 Bomb Bit Type: Diameter (in.) 4.25 1 3/8 - Drill Mud: Casing: Fall (in.) 30 - Hoist/Hammer: Winch/ Doughnut Han Casing: Visual-Manual Identification and Descrip Mainer of Model Main					nt and Procedures					17			/IcK					
Тур	е		1	HSA	İ	S	bile B47 Bombardier		Н	&A	Re	p.			tep					
Insi	de Dia	meter (in.)	4.25	1				_		חו									
Har	nmer V	Veight	(lb.)		1			_		_	n :	See	Pla	n						
Har	nmer F	all (in.))			Doughnut Hammer														
		9.5		Ē	ŧ	15		Gra	vel		San	id		F	ield	Tes	st			
h (ft.		Maine Department of Transportation Maine Test Borings, Inc. Casing Sampler Barrel Drilling Equipment and Proceedings of the Proceedings of									Irse		arse.	Ë	_	S	ર્જ	SSet	æ	ے
	SPT	TEST BORING REPORT It Union Branch Rail Line Property Portland, Maine Maine Department of Transportation (Incomplete Service) Casing Sampler Barrel Drilling Equipment and Procedures			NAME, max. particle size** iptions, geologic interpretat	ion)	% Cos	% Fine	ő %	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength				
F° -	_	Casing Sampler Barrel Drilling Equipment and Procedure HSA S - Rig Make & Model: Mobile B47 Bombard Bit Type: Drill Mud: Casing: Hoist/Hammer: Winch/ Doughnut Hamm Casing											-	10						9
ŀ	1	Union Branch Rail Line Property Portland, Maine Maine Department of Transportation to Maine Test Borings, Inc. Casing Sampler Barrel Drilling Equipment and Procedures Rig Make & Model: Mobile B47 Bombardie Bit Type: Drill Mud: Casing: HSA S - Rig Make & Model: Mobile B47 Bombardie Bit Type: Drill Mud: Casing: Hoist/Hammer: Winch/ Doughnut Hammer Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional			ND, little silt	7			20	50	20	10	_ i			_				
L		Union Branch Rail Line Property Portland, Maine Maine Department of Transportation to Maine Test Borings, Inc. Casing Sampler Barrel Drilling Equipment and Procedures Rig Make & Model: Mobile B47 Bombardie Bit Type: Drill Mud: Casing: HSA S - Rig Make & Model: Mobile B47 Bombardie Bit Type: Drill Mud: Casing: Hoist/Hammer: Winch/ Doughnut Hammer Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional descriptions, geologic inter structure, odor, moisture, optional			FILL-		_	_		10	65	-				_				
-	13 11	Union Branch Rail Line Property Portland, Maine Maine Department of Transportation Maine Test Borings, Inc. Casing Sampler Barrel Drilling Equipment and Procedures			_	lay				15	60	20								
- 5 -	WOH 1		1	i: #:1	4.0			fine sandy SILT with clay, trac	ce gravel and coarse to med	ium		5	10	10	25	50		-		
- -	WOH WOH 1	Bit Type: Drill Mud: Casing: The Weight (lb.) 140 140 140 140 140 140 140 14																		
-	WOR WOH						Very loose,	gray silty SAND, little gravel	l and clay			10	10		50	30				
- 10 -		- 56	10.0		9.4				al fragments			\exists			40	_	_			_
					9.9	OH	_	-HARBOR BOTTOM		1					10	90				
						CL	Soft, gray S	ILI to CLAY with sand, shel	lls					.				-		
-										•										
									drilling and sampling							i				
									п							¥ .				
-						th (ft.)	to:												65	
D.	ate	Time		hr B	ottom	Botto	m Water	1	Screen								2.0			
				<u> </u>	(H	<u> 5, F10</u>		1	Cuttings				ψŪ	(m)	. IL. 6					
			,	<u> </u>		~~		G Geoprobe	Concrete Bentonite Seal	Boı	in	g t				В	311	2		
Fie	eld Tes			Tougl	ness:	<u></u>	ow. M-Med	dium, H-High Dry	Strength: N-None 1-Lo	w M-1	dec	dium	ກໍ	H-F	-liait	ı۷	-Ver	y Hi	gh	
							**Maximu ased on vis	um particle size is determined by	direct observation within the	limitatio	วกร	of s	am	oler	Size	•				

2006 Master Planning
Test Boring Logs



HALE ALDR	EY& UCH		.**				TEST	BORING REPORT Boring No.	HA06-7
Project Client Contrac	So	ott S	Simons	Arch	itects		rage & Ma	ster Planning Portland, Maine File No. 33538-0 Sheet No. 1 of 3 Start 7 Augu Finish 8 Augu	st 2006
			Ca	asing	San	npler	Barrel	Drilling Equipment and Procedures Finish 8 Augu Driller T. Schaef	
Туре			1	/W	5	SS	-	Rig Make & Model: Mobile Drill / Truck H&A Rep. K. St	one
Inside C	Diame	ter (i	n.)	3.0	1.3	375	-	Bit Type: Roller Bit Elevation 10.5 Drill Mud: None Datum Portl	+/- and City
Hamme	er Wei	ght (lb.∤ 3	300	1	40	-	Casing: NW Drive 65.0 ft Location See Pla	
Hamme				30		0	-	Hoist/Hammer: Winch / Doughnut Hammer	
<u>_</u>	Š	(j.)	ft.)	gram	epth	Symbol	\	Grave Sand Grave Grave Sand Grave Grave Sand Grave Gr	Field Test
Depth (ft.)	SPT	& Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Sy		risual-Manual Identification and Description y/consistency, color, GROUP NAME, max. particle size 2, dor, moisture, optional descriptions, geologic interpretation)	Dilatancy Toughness Plasticity
	7 1	S1 12	0.0			SM		ense, dark brown, silty SAND with gravel (SM), mps 1.1 in., 15 10 25 35 15	
10	11 10 18	12	2.0				no odor, d	-FILL-	
8 7		S2 8	5.0 7.0		:	sw	Medium de in., no ode	ense, brown, well-graded SAND with gravel (SW), mps 1.0 r, moist -FILL-	
5		S3 0	10.0 12.0	O WELL INSTALLED	13.0			o recovery, small piece of wood in tip of spoon. Sheen n wash water from 10.0 to 13.0 ft -FILL-	
				×					
10		S4 22	15.0 17.0			CL		e-brown to gray, lean CLAY (CL), mps 0.42 mm, mottled, fine sand and silt partings, no odor, wet -MARINE CLAY-	
6		S5 22	20.0 22.0			CL	Stiff, gray, black strea	lean CLAY (CL), mps 0.075 mm, no odor, wet, frequent ks -MARINE CLAY-	
							FV1 (20.3	- 21.0 ft), Su = 1680 psf	
25 -		Wat	er Lev	el Dat		, ,		Sample Identification Well Diagram Summary	
Date	Ti	me	Elaps Time (l		Dep ottom	th (ft. Botto	im	O Open End Rod Riser Pipe Overburden (lin. ft.)	7.0
8/8/06	5 06	5:30	1 ime (1 	of (Casing 60.0		ole vvater	T Thin Wall Tube U Undisturbed Sample S Split Secon Filter Sand Cuttings Grout Rock Cored (lin. ft.) Samples S10	
								G Geoprobe Concrete Bentonite Seal Boring No.	106-7
Field T	Tests:			Dilata Tougl	néss	L-L	ow. M-Me	ow, N-None Plasticity: N-Nonplastic, L-Low, M-Medium, H-High dium, H-High, N-None, L-Low, M-Medium, H-High, N-None, H-High, H-High, H-High, H-High, H-High, H-High, H-High, H-High, H-H	-Very High
¹SPT =	Sample		ws per 6	in.	² Ma	ximum	particle size	is determined by direct observation within the limitations of sampler size. visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.	

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:PROJECTS\33538VFIELD FORMS\33538-000.GPJ

					TEST BORING REPORT	F	File	No	o.	335	38-			
SPT¹ Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size ² , structure, odor, moisture, optional descriptions, geologic interpretation) FV2 (25.3 - 26.0 ft), Su = 840 psf / 270 psf	T	avel		Sar	nd			ield g	Plasticity a
WOR S6 WOR 24 WOH	30.0 32.0			CL	Medium stiff, lean CLAY (CL), mps 0.075 mm, wet, frequent black streaks -MARINE CLAY-						100			
					FV3 (35.3 - 36.0 ft), Su = 590 psf / 110 psf									
WOR S7 WOR 24 WOR WOR	40.0 42.0			CL	Medium stiff, lean CLAY (CL), mps 0.075 mm, wet, with frequent black streaks -MARINE CLAY-						100			
					FV4 (40.3 - 41.0 ft), Su = 580 psf / 170 psf									
WOR S8 WOR 24 WOR WOR	50.0 52.0			CL	Medium stiff, lean CLAY (CL), mps 0.075 mm, wet, with frequent black streaks -MARINE CLAY-						100			
					FV5 (56.0 - 56.7 ft), Su = 860 psf									
WOR S9 WOR 24 WOR WOR	60.0			CL	Medium stiff, lean CLAY (CL), mps 2.0 mm, wet, trace sand -MARINE CLAY-						100			
WOR 24 WOR WOR = Sampler blow		62.0	62.0	62.0	62.0	60.0 62.0 CL Medium stiff, lean CLAY (CL), mps 2.0 mm, wet, trace sand -MARINE CLAY-	CL Medium stiff, lean CLAY (CL), mps 2.0 mm, wet, trace sand -MARINE CLAY- ws per 6 in. 2 Maximum particle size is determined by direct observation within the limitations of sampler size.	CL Medium stiff, lean CLAY (CL), mps 2.0 mm, wet, trace sand -MARINE CLAY- ws per 6 in. Maximum particle size is determined by direct observation within the limitations of sampler size.	CL Medium stiff, lean CLAY (CL), mps 2.0 mm, wet, trace sand -MARINE CLAY- ws per 6 in. 2 Maximum particle size is determined by direct observation within the limitations of sampler size.	CL Medium stiff, lean CLAY (CL), mps 2.0 mm, wet, trace sand -MARINE CLAY- ws per 6 in. 2 Maximum particle size is determined by direct observation within the limitations of sampler size.	CL Medium stiff, lean CLAY (CL), mps 2.0 mm, wet, trace sand -MARINE CLAY- ws per 6 in. 2 Maximum particle size is determined by direct observation within the limitations of sampler size. Boring No.	CL Medium stiff, lean CLAY (CL), mps 2.0 mm, wet, trace sand -MARINE CLAY- ws per 6 in. 2 Maximum particle size is determined by direct observation within the limitations of sampler size. Boring No.	CL Medium stiff, lean CLAY (CL), mps 2.0 mm, wet, trace sand -MARINE CLAY- ws per 6 in. Maximum particle size is determined by direct observation within the limitations of sampler size. Boring No.	CL Medium stiff, lean CLAY (CL), mps 2.0 mm, wet, trace sand -MARINE CLAY- ws per 6 in. 2 Maximum particle size is determined by direct observation within the limitations of sampler size. Boring No.

H/AI	NLEY & DRIC	S≿ H ≡	i)				TEST BORING REPORT	F	File	No	٥.	33	538	1A0 -000)		
Depth (ft.)	SPT¹	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size ² , structure, odor, moisture, optional descriptions, geologic interpretation)	% Coarse	avel	L	Sa	ηd		F	Toughness 🙃	Plasticity a	Strength
Depth (ft	11 32 20 20	Sample 1	Sample (Sample Operation of Co. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	Well Diagr	(#;) 64.0 Elev./Del	MSCS Sym	(Density/consistency, color, GROUP NAME, max. particle size ² ,	% Coarse				91 <u>1</u> 3%		Dilatancy	Toughness	Plasticity	Strength

4 USCSLIB4.GLB USCSTB+CORE4.GDT G:PROJECTS133538/FIELD FORMS133538-000.GPJ

17 Oct 06

USCS_TB4 USCS

HALEY ALDRIG	&± CH ■■					TEST	BORING REPO	RT		В	ori	ng	No	Э.	H	406	-8
Project Client Contract	Scott	Simons	Arch	itects	-	rage & Ma	ster Planning Portland, M	aine	5	tar	et N	No. 1	1 o		00 ist 20		
		С	asing	Sar	npler	Barrel	Drilling Equipmen	t and Procedures	1 '	inis Irille				rugu haef		NO	
Туре]	NW	3	SS	-	Rig Make & Model: Mob	ile Drill / Truck	ŀ	I&A	Re	ep.	E	3. St	eine	t	
Inside Dia	ameter (in.)	3.0	1.	375	_	Bit Type: Roller Bit		- 1	lev atu		on		2.0		7:4.	
Hammer	Weight	(lb.)	300	1	40	-	Drill Mud: None Casing: NW Drive 25.0	fr	<u> </u>	oca		n ,		Plan	and (ully	
Hammer	Fall (in.)		30	3	0	-	Hoist/Hammer: Winch /										
	غ جَ		Ę	ŧ	豆		figured Manual Indonésia anti-	and Description	G	ave	-	San		-	$\overline{}$	ld T	est
ا با (ال ا	c. je	h se	jagra	Оер С	Symbol	V	/isual-Manual Identification	and Description	92	3 6	arse	dium	9	8	ठ	Sel Jess	ء ا≤
Depth (ft.) SPT¹	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	nscs		//consistency, color, GROUP i dor, moisture, optional descrip) // (200 // (20) // (200 // (200 // (20) // (200 // (200 // (20) // (20) // (200 // (20) // (% Fine	% Coarse	% Me	% Fine	% Fin	Dilatancy	Lougnness	Strength
- 0 15 28 - 32	S1 12	0.0 2.0		*	SP- SM		e, dark brown to black, poorly nps 1 in., hydrocarbon odor, n			+-	+-	40	\rightarrow	_			- 00
23			-			present	-FILL-										
-					· }	NOTE: Si 5.0 ft	milar material to above observe	ed in auger cuttings from 0.0	to								
52 52 52 42	S2 8	5.0 7.0		5.3	<u>SM</u>		e, dark brown to black, well gr nm, slight hydrocarbon odor, r		n, 0	0	1 0	50 15	3 0 80	1 0 -	-	-	-
28				:	31	Medium de	-FILL- ense to dense, yellow-brown, p o odor, moist, wood stuck in ti -FILL-	oorly graded SAND (SP), mp	s I								
- 10 - 2 6 6 8	S3 12	10.0 12.0	WELL INSTALLED	10.5	S <u>M</u> SM		, yellow-brown to brown, silty et, trace wood fragments -FILL-	SAND (SM), mps 4.75 mm,	0	0	1 <u>5</u>	<u>50</u> 45	<u>20</u> 20	1 <u>5</u> 15		- -	-
-			NO WELL I				ense, dark brown to gray, silty some reworked natural materia -FILL-		no								
-				14.0							T					\top	+
- 15 - 4 7 8 11	S4 20	15.0 17.0			CL	Stiff, olive- odor, mois	-gray, lean CLAY (CL), mps (t to wet -MARINE CI		10	i				100			
				17.0					-	1	-	1-		82	-+		+-
20 WOH WOH		20.0 22.0			CL	Very soft, frequent bl	gray, lean CLAY (CL), mps 1 ack streaks -MARINE CI							100	i		
*																	
25	<u> </u>		<u> </u>							<u> </u>	_	<u> </u>			\perp		
	i	ter Lev Elaps			th (ft.)) to:	Sample Identification O Open End Rod	Well Diagram Riser Pipe	0.45			mm Vic		\ -	4.0		
8/10/06	11:00	Time (hr \ B	ottom Casing	Botto	Water	O Open End Rod T Thin Wall Tube U Undisturbed Sample	Screen Filter Sand Cuttings	Over Rock Sam	Co	гес) (-		
							S Split Spoon G Geoprobe	Grout Concrete	Bori	ng	N	о.		HA	106-	8	
Field Te	ts:	<u> </u>	Dilata				ow, N-None Plas	Bentonite Seal sticity: N-Nonplastic, L-Lo	w, M-N	/led	ium	i, H	-Hia	ih			
		ws per 6		ness:	لحلب	ow. M-Me	dium. H-High Dry	Strength: N-None, L-Low ration within the limitations of s	<u>. M-M</u>	<u>edi</u>	um.	H-	<u>Higl</u>	<u>n. V</u>	-Ver	∠Hig	h_

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:VPROJECTS\33538VFIELD FORMS\33538-000.GPJ 17.0ct 08

I A	IALEY (ALDRIC	ξ H					TEST BORING REPORT	F	ile	No).	335	38-	(A0 0	ı		
Depth (ft.)	SPT¹	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size ² , structure, odor, moisture, optional descriptions, geologic interpretation)	% Coarse		% Coarse	San Wedinm %		% Fines		Toughness a	Plasticity al	Strength
- 25	WOR WOR WOR	\$6 24	25.0 27.0			CL	Very soft, gray, lean CLAY (CL), mps 0.42 mm, bonded, no odor, wet, frequent black streaks and fine sand partings, trace shells -MARINE CLAY-					10	90				
- 30 - - - - 35	WOR WOR WOR	S7 24	30.0 32.0		30.3	<u>CL</u>	Very soft, gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet, trace shells, black streaks/specs become less frequent with depth -MARINE CLAY-		7.(100				
40 45 45 45 45 45 45 45 45 45 45 45 45 45	WOR WOR WOH	S8 24	40.0 42.0			CL	Very soft, gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet, trace fine sand -MARINE CLAY-						100				
G:VPROJECTS\u00e43538\rightarrow\u00e49538\rightarrow\u00e4959538\ri	18 26 22 38 40	\$9 12 \$10 12	50.0 52.0 52.0 54.0		50.2	SW- SM BR	Dense, gray, well graded SAND with silt (SW-SM), mps 4.75 mm, bonded, no odor, wet -GLACIAL TILLWEATHERED BEDROCK-	0	0	30	40	20	10				
FB4 USCSLIB4.GLB USCSTB+CORE4.GDT	52 55				54.0		-BOTTOM OF EXPLORATION-								06-5		

USCS TRA USCSURAGER USCSTR+CORFAGDI

'SPT = Sampler blows per 6 in. Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No.

APPENDIX B

Recent Subsurface Explorations



A		EY&	Σ H			TEST	BORING REPO	RT		Ö	Ori	ng	No). 	_	HA	108	3- :
Clie	ject ent ntracto	Main	e Me	alth/Unit dical Ce Test Bori	nter		nt, Portland, Maine			St St	art	No	. 1 8	561 of Au	4 gus	t 20		
				Casing	Sam	pler Barrel	Drilling Equipme	nt and Procedures			nish iller			2 A			900	8
Туре	 е			NW	s		Rig Make & Model: Mo	bile Drill B-50 Bombard	ier					. L:				
Insic	de Dia	meter	(in.)	3.0	1 3	/8	Bit Type: Roller Bit Drill Mud: None						_	1.5			D -	
Ham	nmer \	Veight	(lb)	300	14	0 -	Casing: NW drive to 1					ion		rtlar ee F		_	Da	ııu
Ham		Fall (in	.)	30	30	-	Hoist/Hammer: Winch PID Make & Model:	Doughnut Hammer										
£	lows J.	. (. . (.	e€	€ = €	Symbol	vis	UAL-MANUAL IDENTIFICATION	ON AND DESCRIPTION		-	avel		Sand	4		F	ield Ω	T
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Denth (ft)	Stratum Change Elev/Deoth (ft)	USCS Syr	(Densi	ty/consistency, color, GROUP structure, odor, moisture, op GEOLOGIC INTERPI	tional descriptions	,	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Closticity
0 -				0.1			-Bituminous Con	ncrete-		Ė		F	Ħ			Ħ		F
	20 50 23 26	\$1 16	1.0 3.0		GW	, , , , ,	gray, well-graded GRAVEL (Contermixed with 15% concrete -FILL-		icture,	35	35	10	10	10				
	5 8 100	S2 19	3.0 4.5	1	SM		lark gray, silty SAND (SM), n ntermixed with 10% concrete -FILL-		no —	5	5	30	30	15	15			
5	18 13 8 6	S3 22	5.0 7.0		SM	Medium dens odor, moist	e, dark gray, silty SAND (SM -FILL-), mps 1-3/8 in., no struct	ire, no	5	5	30	30	15	15			
Ì	7	S4 11	7.0 9.0		SM	Loose, dark g	gray, silty SAND (SM), mps 1-	-3/8 in., no structure, no o	dor,	5	5	30	30	15	15			
	2 2			9.0			-FILL-											
10	2 1 3 3	S5 7	10.0 12.0	· I	OL/ OH		sandy ORGANIC SILT (OL/C anic odor, wet -HARBOR BOTTOM	•	nm, no					15	85			
}	28 12 11 10	S6 9	12.0 14.0		OL/ OH		e, gray, sandy ORGANIC SIL ture, petroleum-like odor, wet,		nps 2.0					15	85			
15	7 11 18 21	S7 24	15.0 17.0	1	CL		ve-gray, silty lean CLAY (CL no odor, moist -GLACIOMARINE	•	ttling,						100	N	L	I
20		Wa	ater L	evel Dat	a		Sample ID	Well Diagram				Sum	ıma	rv				
Da	ate	Time	Ela	psed	Depth	n (ft) to:	O - Open End Rod	Riser Pipe Screen	Overl	bur					98.5	;		
			Time	of C	asing	of Hole Wate	T - Thin Wall Tube U - Undisturbed Sample	Filter Sand	Rock			l (ft		_	0			
	2/08 2/08	1148 1230		9	9.0	101.7 19.1 76.0 7.1	S - Split Spoon Sample	Grout Concrete Bentonite Seal	Samp Bori) .	18		HA	08	·1	
Field	Tests	:	-			Rapid S - Slow - Low M - Medi		Icity: N - Nonplastic L - L Strength: N - None L - Lov										

F	LD	EY& RIC	¥ H			TEST BORING REPORT	F	ile	ing No. et N	3	561	1-00 of		08-	1
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	+	ave	Se l	% Medium			F	Toughness a	
	WOH WOH WOH	S8 24	25.0 27.0		CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist FV1 (25.3-26.0 ft), Su = 900/250 psf -GLACIOMARINE DEPOSIT-						100	N	L	L
30 -	WOR	\$9	35.0		CL	Medium stiff, dark gray, lean CLAY (CL), mps 2.0 mm, no structure, no						100	N	L	L
	WOR WOH WOH	21	37.0			odor, wet FV2 (35.3-36.0 ft), Su = 650/330 psf -GLACIOMARINE DEPOSIT-					•				
	WOR WOR WOR	S10 24	45.0 47.0		CL	Very soft, dark gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet FV3 (45.3-46.0 ft), Su = 204/120 psf -GLACIOMARINE DEPOSIT-						100	N	L	L
[sual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.	_ 		ng	<u></u>			HA	08.	 1

F	ALD	EY&	¥ H			TEST BORING REPORT	F	ile	No.		3561	1-00 of		.08-	1
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	+	avel	l g	San Ę	d		_	Toughness	Plasticity A
- 50 -	Š	0,50		3	<u>n</u>	Note: Trace of sand and gravel observed in wash water.	6	8	8	8	6	8		T	
55 -	WOR WOR WOR WOR	NR	56.0 58.0			Note: No recovery, probable gravel or cobble pushed by spoon tip. FV4 (56.3-57.0 ft), Su = 1220/530 psf									
60 -	WOR WOR WOR	S11 24	60.0 62.0		CL	Very soft, dark gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet, frequent fine sand seams -GLACIOMARINE DEPOSIT-					5	95	Z	L	L
65 -	5 1 3 10	S12 14	65.0 67.0	65.0	SC/SM	Very loose, gray, clayey SAND to silty SAND (SC/SM), mps 0.25 in., no structure, no odor, wet -GLACIOMARINE DEPOSIT-	:	5	15	20	45	15			
70 -	23 24 31 43	S13 24	70.0 72.0	69.0	SM	Very dense, gray, silty SAND with gravel (SM), mps 0.25 in., bonded, no odor, moist -GLACIAL TILL-		10	20	25	30	15			
75 -	44 76 81 100/4"	\$14 15	75.0 77.0		SM	Very dense, gray, silty SAND with gravel (SM), mps 0.25 in., bonded, no odor, moist -GLACIAL TILL-	5	5	20	25	30	15			
						sual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.				No			HA	U8-	=

I A		EY&	È H			TEST BORING REPORT	F	ile	_	N o.	561		HA 00 4	.08-	1
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*,	Coarse D	avel	1	San Wedinm %		es		SS	Tes
Del	Samp	Sam & Re	Sal	Eleví	SOSN	structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	လ %	% Fine	% Coarse	% Me	% Fine	% Fines	Dilatancy	Toug	Plasticity
- 80	50 44 56 65	S15 19	80.0 82.0		SM	Very dense, gray, silty SAND (SM), mps 0.25 in., bonded, no odor, moist -GLACIAL TILL-	5	5	20	25	30	15			
- 85 -	57 87 102 90	\$16 18	85.0 87.0		SM	Very dense, gray, silty SAND (SM), mps 0.25 in., bonded, no odor, moist -GLACIAL TILL-	5	5	20	25	30	15			
- 90 -	8 21 62 87	S17 18	90.0 92.0		SM	Very dense, gray, silty SAND (SM), mps 0.25 in., bonded, no odor, moist, occasional pockets of sandy SILT -GLACIAL TILL-	5	5	20	25	30	15			
95 -															
				98.5											
100	34 48 71 146	S18 14	100.0 102.0		BR	Highly weathered SCHIST -WEATHERED BEDROCK- Note: Unable to advance core barrel through casing at 90.0 ft, casing									
				102.0		Notes: 1. FV1 (25.3-26.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.									
L		<u> </u>				sual-manual methods of the USCS as practiced by Haiey & Aldrich, Inc.	В	_					HA		_

		EY& RIC				99	TEST	BORING REPOR	RT		В	ori	ng	No) .		HA	08	-2	
Clie	ject ent ntracto	Main	e Med	Ith/Unite lical Cer est Borin	iter	-	elopment	, Portland, Maine			St St	e N eet art	No	1	2 A	3 ugu	st 2			
		•		Casing	Sam	pler	Barrel	Drilling Equipment	t and Procedures			nish iller			3 A 1. P		st 2 er	008	ı	
Тур	e			NW	5	;		Rig Make & Model: Mob	ile Drill B-50 Bombardio	er	Нδ	kA F	Rep	. O). L	awi	or			
Insid	de Dia	meter	(in.)	3.0	13	/8		Bit Type: Roller Bit Drill Mud: None				eva atun					7:4	D-		
Han	nmer \	Veight	(lb)	300	14	ю	•	Casing: NW drive to 68				cat					City	Da	lum	
Han	nmer f	all (in	.)	30	3	0	-	Hoist/Hammer: Winch PID Make & Model:	Doughnut Hammer											
₽	Blows in.	No ii.)	æ£	(£)	Symbol		VISU	IAL-MANUAL IDENTIFICATION	N AND DESCRIPTION		\vdash	vel		and				_	Tes	it_
Depth (ft)	Sampler B per 6 ir	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Syr		(Density	//consistency, color, GROUP N structure, odor, moisture, opti GEOLOGIC INTERPRI	onal descriptions		% Coarse	% Fine	% Coarse	« Mediun	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
- 0 -	1	S1	0.0	ш	SM	Med	ium dense	, brown, silty SAND (SM), mp	os 0.25 in., trace wood and	l ash,	-	0			25		H		≒	<u>s</u>
	5 8 12	24	2.0					o odor, moist -FILL-	·	ŕ										
-	12 14 12 9	NR	2.0 4.0																	
- 5 -	2 3 4 6	S2 19	4.0 6.0	4.0	SP		se, red-bro , moist	wn, poorly graded SAND (SP)	, mps 4.0 mm, no structu	e, no			30	30	40			Ì	-	
-	5 6 2	S3 14	6.0 8 .0		SP		se, red-bro , moist	wn, poorly graded SAND (SP)	, mps 4.0 mm, no structu	re, no			30	30	40					
-	1 1 1 1	S4 7	8.0 10.0	7.9	GM	Very	loose, bla	ick, silty GRAVEL (GM), mps -FILL-	s 0.5 in., trace shells and v	vood	40	30	5	5		20	-	-	-	
	1			9.8	OL/	<u>L</u>						L -	L.		L.		_	_	_	
- 10 -	3 11	S5 4	10.0 12.0	10.0	OH		nic odor, v		mps 2.0 mm, no structure	;, /	20	45	5	5	5	ħΩΩ	7	7	- 1	
-	51 54		12.0		GP		dense, grador, wet	-FILL- ay, poorly graded GRAVEL ((-FILL-	GP), mps 1-3/8 in., no stru	J icture,										
-				14.0	:			ced roller bit through rock fill the first fill the first fill the	from 10.0 to 13.8 ft, adva	nce										
- 15 -	WOH 2 4 4	NR	15.0 17.0			Note	: No reco	very, probable cobble pushed l	by spoon tip.											
-	4 6 4	\$6 24	17.0 19.0		CL	Stiff,	, gray, silt	y lean CLAY (CL), mps 2.0 m -GLACIOMARINE D		moist										
┡	-																			
20																			<u>_</u>	
	_		Flan	vel Data		h (ft)	to:	Sample ID O - Open End Rod	Well Diagram Riser Pipe	Overl			Sum offi				,		_	_
	ate	Time	Time	(hr Bo	ttom	Bottom of Hole	Water	T - Thin Wall Tube	Screen Filter Sand	Rock					•	58.7 0	,			
								U - Undisturbed Sample S - Split Spoon Sample	Cuttings Grout	Samp				10	S					
									Concrete Bentonite Seal	Bori	ng	No) .]	HA	.08	2		
Fleid	l Tests	:	•	Toughne	ess: L	- Low			ity: N - Nonplastic L - Lorength: N - None L - Low							Very	Higl	1		

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB-CORE+WELL-07-1.GDT G:/PROJECTS/35611/FIELD PROGRAM/35611-000 TB.GPJ 10 Sep 08

A	LD	EY& RIC	¥ H			TEST BORING REPORT	F	ile	No	, No , 3 No.	561 2	1-00	HA 0 3	.08-	2
(#) r	Blows in.	e No.	ple (#)	rum nge pth (ft)	ymbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	Gra	ave	1 g	San	d		F	ield	
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	(Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medi	% Fine	% Fines	Dilatancy	Toughness	Plasticity
20-						Note: Advanced NW casing to 25.0 ft and wash out with roller bit. Bottom 10.0 ft of casing spun off and could not be retrieved. Relocated boring approximately 5 ft west and resumed sampling at 25.0 ft.									
25 -	WOH WOH WOH	\$7 24	25.0 27.0		CL	Very soft, dark gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet FV1 (25.3-26.0 ft), Su = 610/200 psf -GLACIOMARINE DEPOSIT-						100	N	L	L
30 -				•											
	WOR WOH WOH	S8 4	35.0 37.0		CL	Medium stiff, gray, lean CLAY (CL), trace gravei, mps 1.0 in., no structure, no odor, wet FV2 (35.3-36.0 ft), Su = 410/120 psf -GLACIOMARINE DEPOSIT-						100	N	L	L
40 -							:								
	WOR WOH WOH	S9 24	45.0 47.0		CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet FV3 (45.3-46.0 ft), Su = 570/160 psf -GLACIOMARINE DEPOSIT-						100	N	L	L

F		EY&	ξ H			TEST BORING REPORT	F	ile	ing No. et N	3	561	1-00 of		08-2	2
(#)	3lows n.	S (ii)	ē €	E 8 E	logEL	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	\vdash	avel	1	San	_		Т	Ś	Tes
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	(Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity
55 -	WOR WOR WOR	NR	55.0 57.0			Note: No recovery, gravel in spoon tip. FV4 (55.3-56.0 ft), Su = 490/120 psf -GLACIOMARINE DEPOSIT-									
60 -				61.0		Note: Drill action indicates stratum change at 61.0 ft. Gravel in drill wash water.									
65 -	11 16 16 48/3"	\$10 17	65.0 67.0	66.6	SM	Dense, olive-gray, silty SAND (SM), mps 4.0 mm, bonded, no odor, moist -GLACIAL TILL- Note: Recovery from 66.6 to 67.0 ft consists of SCHIST.			30	30	25	15			
				68.7		Note: Roller cone refusal. BOTTOM OF EXPLORATION Notes: 1. FV1 (25.3-26.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.									
						sual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.	_		ng	<u></u>	<u></u>		HA	NR-*	

Ā	LD	EY& RIC					T BORING REPO	RT			ori					HA	504)-J
Clie	oject ent ntracto	Main	e Me	dical C	enter	•	nent, Portland, Maine			Sh St	art	No). 1 2		2 ily 2	200		
		actor Maine Test Borings, Inc. Casing Sampler Barrel Drilling Equipment and Procedures NW S Rig Make & Model: Mobile Drill B-50 Bomba Bit Type: Roller Bit									nish 'iller			4 Ju 1. P		2008 er	3	
Тур	е			NW		3		bile Drill B-50 Bombaro	lier	Н	&A I	Rep). C). L	awl	or		
Insid	de Dia	meter	(in.)	3.0	13	3/8	Bit Type: Roller Bit Drill Mud: None							1 +		City	Da	tu
		Veight		300	14	10 -	Casing: NW drive to 1 Hoist/Hammer: Winch			_			_	ee I				
Han		all (in	.)	30	3	0 -	PID Make & Model:	Douginut Hannier										
€	Blows in.	S (E)	<u>e</u> €	EB		١ ،	/ISUAL-MANUAL IDENTIFICATIO	ON AND DESCRIPTION		-	avel	-	San			\vdash	eld g	
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum	USCS Symbol	(Dei	nsity/consistency, color, GROUP structure, odor, moisture, op GEOLOGIC INTERPF	tional descriptions	* 	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Placticity,
0 -							-Bituminous Con	icrete-			Г			Г				=
	32	S1	1.0	1.0	GW		ense, gray, well-graded gravel wit		with	40	30	15	10	5		H		_
	17 10	19	3.0	2.0	SM	Medium de	ete fragments, no structure, no odense, gray, silty SAND (SM), mp				┼-	30	30	25	15	┝┤	-	_
	5 12	S2 20	3.0 5.0	-	SM		ense, gray, silty SAND (SM), interps 0.25 in, no structure, no odor,		l			30	20	25	15			
					$\frac{1}{2} \frac{1}{2} $	Medium de	-FILL-	VD (SW), mps 0.5 in., no			┡-	30	40	30			-	_
5 -	8 4.5 SW Medium dense, red-brown, well-graded SAND (SW), mps 0.5 in. 2 S3 5.0 2 9 7.0 1 Medium dense, red-brown, well-graded SAND (SW), mps 0.5 in. structure, no odor, moist, sample composed entirely of cinder and brick and coal											50	10	30				
	2						-FILL-											
	9 8 6 3	\$4 4	7.0 9.0		GP		ense, dark brown, poorly-graded (r, glass and wood fragments -FILL-	GRAVEL (GP), mps 1-3/	8 in.,	40	35	10	5	5	5			
10-	1 1	S5 20	10.0 12.0	4) _ _{SM} -	mps 0.5 in.	, gray, silty SAND (SM), intermi	anic silt in tip of spoon	ash,			30	30	25	15	_		_
	2 2			12.														
	1 3 3 2	S6 18	12.0 14.0		ML		iff, gray, SILT with sand (ML), n trace organic matter, no structure -HARBOR BOTTOM	, hydrogen sulfide odor,	moist					10	90			
15 -	WOH WOH 1 2	\$7 16	14.0 16.0		ML		gray, SILT with sand (ML), mps ic matter, no structure, hydrogen		nents,					10	90			
	WOH	S8	16.0	16.	(1,12		gray, SILT with sand (ML), mps		nents,		\vdash	\vdash		10 ₁	90/	\vdash	\dashv	_
	2 5 7	21	18.0	18.0	CL	Medium sti	ic matter, no structure, hydrogen iff, gray with occasional mottled b ccasional fine sand pockets, trace -GLACIOMARINE 1	prown, lean CLAY (CL), root fibers, no odor, mois	mps st					5	95			
				10.0		Notes: 1. WOH =	BOTTOM OF EXPLO		/									
		W:	ater I	evel Da	ıta	<u> </u>	Sample ID	Well Diagram	Γ			Sum	lma	irv				=
D	ate	Time	Ela	psed_		h (ft) to:	O - Open End Rod	Riser Pipe Screen	Overl	our					18.0)		_
			+	of	Casing	of Hole Wa	II - Undisturbed Sample	Filter Sand	Rock			(ft			0			
	4/0 8 4/0 8		1	.25).5	16.0	18.0 4. 18.0 7.	S - Split Spoon Sample	Grout Concrete Bentonite Seal	Samp Bori).	8	_	HA	.08	-3	_
Field	i Tests	:	_			Rapid S - Slo	ow N - None Plasti	city: N - Nonplastic L - L trength: N - None L - Lo	ow M-N									_

HALEY& **Boring No.** HA08-4 **TEST BORING REPORT Project** Maine Health/United Way Development, Portland, Maine File No. 35611-000 Sheet No. 1 of 3 Client Maine Medical Center Maine Test Borings, Inc. Contractor Start 4 August 2008 4 August 2008 Finish **Drilling Equipment and Procedures** Casing Sampler Barrel Driller M. Porter Rig Make & Model: Mobile Drill B-50 Bombardier H&A Rep. O. Lawlor Type HW S Bit Type: Roller Bit Elevation 12 +/-Inside Diameter (in.) 4.0 1 3/8 Drill Mud: Bentonite Datum Portland City Datum Hammer Weight (lb) 300 140 Casing: HW Drive to 64.4 ft. Location See Plan Hoist/Hammer: Winch Doughnut Hammer Hammer Fall (in.) 30 30 PID Make & Model: Gravel Sand Field Test Sample No. & Rec. (in.) JSCS Symbol **VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION** . Bo Sample Depth (ft) Stratum Change Elev/Depth (Depth (ft) Toughness % Medium Dilatancy Coarse % Coarse Plasticity Sampler E (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION) % Fines % Fine % Fine × 0 -Bituminous Concrete-0.5 Dense, dark brown, poorly-graded SAND with silt (SP-SM), trace gravel, 30 40 15 10 S1 0.5 23 SM mps 1-3/8 in., intermixed with 5% cinder, ash, no structure, no odor, moist 17 2.5 -FILL-14 11 SP-Medium dense, dark brown, poorly-graded SAND with silt (SP-SM), trace 5 30 40 15 10 14 S2 2.5 SM gravel, mps 1-3/8 in., intermixed with 5% cinder, ash, no structure, no odor, 12 4.5 12 25 5 Medium dense, brown, silty SAND (SM), mps 0.5 in., intermixed with 20% 8 S3 SM 30 30 20 20 5.0 24 cinder and ash, no structure, no odor, moist 10 7.0 -FILL-8 Loose, dark brown, poorly-graded SAND with silt (SP-SM), mps 0.25 in., SP-35 40 15 10 8 S4 7.0 5 4 SM trace wood, no structure, no odor, moist 9.0 3 3 2 SP. Loose, dark brown, poorly-graded SAND with silt (SP-SM), mps 0.25 in., 35 40 15 10 **S5** 9.0 4 6 11.0 SM trace wood, trace shells and glass, no structure, no odor, wet 4 6 11.0 \overline{SM} Loose, gray, silty SAND (SM), trace gravel and roots, mps 0.25 in., no 2 **S**6 11.0 15 30 30 12 structure, no odor, wet 3 13.0 4 3 13.0 ML WOH Soft, gray, sandy SILT (ML), trace fine gravel, mps 0.25 mm, trace shells, 15 30 50 \$7 13.0 21 no structure, no odor, wet 1 15.0 -HARBOR BOTTOM DEPOSIT-3 3 ML 10 15 20 50 Very stiff, gray, sandy SILT (ML), trace fine gravel, mps 0.25 mm, trace 5 4 S8 15.0 5 shells, no structure, no odor, wet, clay in tip of spoon 12 17.0 12 15 16.9 CL Very stiff, gray, silty lean CLAY (CL), mps 2.0 mm., occasional brown 100 N L L 4 59 17.0 6 24 19.0 mottling, no structure, no odor, moist 10 -GLACIOMARINE DEPOSIT-14 Water Level Data Well Diagram Sample ID Summary Depth (ft) to: Riser Pipe Elapsed O - Open End Rod Overburden (ft) 66.0 Time Date Bottom Bottom Screen Time (hr.) Water T - Thin Wall Tube Rock Cored (ft) 0 of Casing of Hole Filter Sand U - Undisturbed Sample Cuttings Samples 17S, 2U S - Split Spoon Sample Grout HA08-4 Concrete **Boring No.** Bentonite Seal Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High **Field Tests:** Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High *Note: Maximum particle size is determined by direct observation within the limitations of sampler size

Note: Soil Identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1,GDT

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A		EY&	Ξ H			TEST BORING REPORT	F	ile		3). 3561 2	1-00		.08-	4
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Coarse 5	% Fine	g	San medium %	_	% Fines	Dilatancy	Toughness	
- 20 -	1 3 4 4	S10 24	20.0 22.0		CL	Medium stiff, gray, silty lean CLAY (CL), mps 2.0 mm, occasional brown mottling, no structure, no odor, moist					 	100	-	-	L
-	1 3 3 3	S11 12	22.0 24.0		CL	Stiff, gray, silty lean CLAY (CL), mps 2.0 mm, occasional brown mottling, no structure, no odor, moist FV1 (22.3-23.0 ft), Su = 1,045 psf -GLACIOMARINE DEPOSIT-						100	N	L	L
- 25 -	P U S H	U1 23	25.0 27.0												
						FV2 (27.3-28.0 ft), Su = 590/160 psf									
30 -	WOR WOR WOR WOR	S12 22	30.0 32.0		CL	Medium stiff, dark gray, lean CLAY (CL), trace fine sand and gravel from 31.7 to 32.0 ft., no structure, no odor, wet FV3 (30.3-31.0 ft), Su = 500/90 psf					5	95	N	L	L
35 -	P U S H	U2 23	33.0 35.0												
						FV4 (35.3-36.0 ft), Su = 340/65 psf -GLACIOMARINE DEPOSIT-									
	WOR WOR WOR WOR	S13 22	40.0 42.0		CL	Soft, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet $Su=400/120$ psf FV5 (40.3-41.0 ft), $Su=400/120$ psf						100	N	L	L
	WOR WOR WOR WOR	S14 24	45.0 47.0		CL	Soft, gray, lean CLAY (CL), trace gravel, mps 2.0 mm, no structure, no odor, wet FV6 (45.3-46.0 ft), Su = 420/110 psf -GLACIOMARINE DEPOSIT-						100	N	L	L
				tion base				ori						.08-	

ŀ		EY&	¥ H			TEST BORING REPORT	F	ile	ing No. et N	3	561	1-00	HA 10 3	U 8-	4	
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	ge .	% Medium	% Fine	% Fines		Toughness a	Plasticity a	
- 50 -	WOR WOR WOR WOR	S15 24	50.0 52.0		CL	Medium stiff, gray, lean CLAY (CL), trace gravel, mps 2.0 mm, no structure, no odor, wet FV7 (50.3-51.0 ft), Su = 610/80 psf						100		L	L	•
55 -	WOR 3 3 6	S16 24	55.0 57.0	55.4	-sc	Loose, gray, clayey SAND (SC), mps 4.0 mm, no structure, no odor, wet -GLACIOMARINE DEPOSIT-			-		75	25		_		
60 -	13 17 24 34	\$17 24	60.0 62.0	58.8	SM	Dense, gray, silty SAND (SM), trace gravel, mps 1-3/8 in., bonded, no odor, moist -GLACIAL TILL-		5	20	30	30	15				
65 -				64.4		Note: Drill action indicates probable bedrock at 64.4 ft. -WEATHERED BEDROCK- Note: Roller bit refusal at 66.0 ft. BOTTOM OF EXPLORATION Notes: 1. FV1 (22.3-23.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.										-
	NOTE:	Soil id		tion base	d on vi	sual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.	В	ori	ng	No			НА	08-	<u>-</u>	-

	ject		ne He		nited W			, Portland, Maine				e N			561 of		00		
	ntracto				orings,	Inc.					St	art		3	l Ju	ıly 2			
				Casir	ng Sa	mpler	Barrel	Drilling Equipmer	nt and Procedu	res	- 4	nish iller			Au 1. P			800	
Тур	e			NW		s	NQ	Rig Make & Model: Mo	bile Drill B-50 F	Bombardier		&A I							
Insi	de Dia	meter	(in.)	3.0	1	3/8	2.0	Bit Type: Roller Bit Drill Mud: None				eva					٦٠.	_	
Han	nmer \	Veight	(lb)	300		140	•	Casing: NW drive to 63			_	atun		Po				Da	.tui
Har		Fall (in	ı.)	30	- 1	30	•	Hoist/Hammer: Winch PID Make & Model:	Doughnut Ham	mer									
₽	lows I.	9 E	ω≨	ram	€ 6	Symbol	VI	SUAL-MANUAL IDENTIFICA	TION AND DESC	RIPTION	-	avel		San			F	ield σ	
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample	Well Diagram	Stratum Change Flev/Depth (#)	USCS Syr	(Den	sity/consistency, color, GROU structure, odor, moisture, GEOLOGIC INTER	optional descripti		% Coarse	% Fine	% Coarse	% Mediun	% Fine	% Fines	Dilatancy	Toughness	Plasticity
0 -	4 9 11 22	\$1 11	0.0 2.0			SP		dense, brown, poorly-graded trace cinder and ash, mps 1.0 -FILL	in., no structure,				30	40					
	22 19 13 11	\$2 14	2.0 4.0		**	SW- SM		rown, well-graded SAND with lers and ash	n silt (SW-SM), n	mps 1-3/8 in.,			30	40	20	10			
5 -	6 5 2 3	\$3 8	4.0 6.0			SW- SM		own, well-graded SAND with lers and ash -FILL		nps 1-3/8 in.,			30	40	20	10			
	2 1 1 6	S4 5	6.0 8.0	r. 💳.		SW- SM		se, brown, well-graded SAND cinders and ash, wet	with silt (SW-Si	M), mps 1-3/8			30	40	20	10			
	6 5 2	S5 7	8.0 10.0		8.0	SM		ray, silty SAND (SM), mps 0. s, no structure, no odor, mois		and brick	†		20	30	35	15			<u> </u>
10-	1			-11				-FILL	-										
	2 2 3 3	\$6 20	10.: 12.5		10.5	OL/ OH		stiff, dark gray, ORGANIC S. I fragments, no structure, org -HARBOR BOTTO	anic odor, moist	ps 0.25 in.,						100			
	10 11 14 15	\$7 6	13.0 15.0		13.0	CL		stiff, olive-gray, silty lean CL no odor, moist, probable roc								100	N	L	L
15-	3 4 4 5	S8 20	15.0 17.0			CL		stiff, gray with brown mottles tructure, no odor, moist -GLACIOMARIN		(CL), mps 2.0						100	N	L	L
20 -		10/	ater I	evel E	ata			Sample ID	Well Diag	nram T		6	3000	nma	n,		-		
D.	ate	Time	Ela	psed	Dep	oth (ft)	to:	Sample ID O - Open End Rod	Riser	Pipe Ove	rbur					3.8			
	ale	111110		e (hr 1	Bottom of Casing			T - Thin Wall Tube U - Undisturbed Sample	Screen Filter:	Sand Roc	k Co	red	(ft			5.0			
								S - Split Spoon Sample	Grout Concr	rete Bor	ing	No	Э.]	HA		-5(OV	V)
Field	i Tests	:	-		ancy: R		S - Slow	N - None Plastic	city: N - Nonplas		Medi	um	Н-	High	1				_

F	IAL LD	EY&	X H				TEST BORING REPORT	F	ile	No	No. 3	3561	1-00	00	-5(0)W
				٤	£	<u>8</u>	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	_	ave	7	San	_	OI		ield	Te
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	(Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity
				0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			FV1 (20.3-21.0 ft), Su = 720/260 psf									
25 -	WOR WOR WOH	S9 24	25.0 27.0	6910 6 10 10 10 10 10 10 10 10 10 10 10 10 10		CL	Medium stiff, gray to black, lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist FV2 (25.3-26.0 ft), Su = 720/200 psf						100	N	М	M
30 -				0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			FV3 (30.3-31.0 ft), Su = 730/170 psf -GLACIOMARINE DEPOSIT-									
35 -	WOR WOR WOR WOR	S10 21	35.0 37.0			CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet FV4 (35.3-36.0 ft), Su = 600/290 psf					Ω.	100	N	L	L
	WOR WOR WOR WOR	S11 24	40.0 42.0			CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet FV5 (40.3-41.0 ft), Su = 600/190 psf -GLACIOMARINE DEPOSIT-						100	N	L	L
45 -																
	-			9			manual methods of the USCS as practiced by Haley & Aldrich, Inc.	 -			No		H/	108	-5//	

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Œ	3lows n.	o S (ii)	≘ €	Jram	ਜ਼ਿਜ਼ ਜ਼ਿ	Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION		avel	i –	San		-		ield %		1
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	5	Stratum Change Elev/Depth (ft)	USCS Sy	(Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	
50 -	WOR WOR WOR	S12 24	50.0 52.0	0 0 0 0 0 0 0 0 0		CL	Medium stiff, gray, lean CLAY (CL), fine sand in spoon tip, mps 2.0 mm, no structure, no odor, wet FV6 (50.3-51.0 ft), Su = 700/370 psf					5	95	N	L	L	
	WOR			, ,			-GLACIOMARINE DEPOSIT-										
				0 0 0 0 0 0	53.0		Note: Sand and fine gravel observed in wash water.										
55 -	16 9 7	NR	60.0				-PROBABLE GLACIAL TILL-										
65 -	36 \50/1"/	\$13 5_/	63.2 \63.7	6 10 10 10 10 10 10 10 10 10 10 10 10 10	62.5		Note: Casing refusal at 62.5 ft. Advanced roller bit to 63.8 ft. Begin NQ Rock Core at 63.8 ft. See Core Boring Report for Details. Notes: 1. FV1 (20.3-21.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.										
	NOTE:	Soll id	entifica	tion ba	sed on v	risual-n	nanual methods of the USCS as practiced by Haley & Aldrich, inc.	В	ori	na	No.		HA	.08-	5(C	w	

HALEY& ALDRICH

CORE BORING REPORT

Boring No. HA08-5(OW)File No. 35611-000
Sheet No. 4 of 4

ALI	DIC							Sheet No. 4 of 4
Depth	Drilling Rate	Run	Run	Recove	ry/RQD		Elev./	Visual Description
(ft)	(min./ft)	No.	Depth (ft)	in.	%	ering	Depth (ft)	and Remarks
				<u> </u>	,,,		(1.7	SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
- 65 —	7 6	C1	63.8 65.4	19 0 36	99 0 88		65.4	Moderately hard, moderate to highly weathered, dark green aphanitic CHLORITE SCHIST. Foliation is extremely thin, vertical. Primary joint set is parallel to foliation, vertical, extremely close, smooth, stepped, fresh to discolored with pyrite, open. Note: RQD affected by extremely close fractures and drill action. Moderately hard, moderate to highly weathered, dark green aphanitic CHLORITE
	6		68.8	12	29			SCHIST. Occasional, very thin, high angle to vertical quartz veins. Primary joint set is parallel to foliation, vertical, extremely close, smooth, stepped, fresh to discolored with pyrite, open.
							68.8	BOTTOM OF EXPLORATION
- 70 –								Note: Observation Well installed in completed borehole. See installation report for details.
	T.			:				
75 -					:			
80 –								
85 –								
90 -								
l								

Boring No. HALEY& HA08-6 TEST BORING REPORT **ALDRICH** File No. 35611-000 **Project** Maine Health/United Way Development, Portland, Maine Sheet No. 1 of 1 Client Maine Medical Center Maine Test Borings, Inc. Start 23 July 2008 Contractor Finish 24 July 2008 Casing Sampler Barrel **Drilling Equipment and Procedures** Driller M. Porter Rig Make & Model: Mobile Drill B-50 Bombardier H&A Rep. O. Lawlor Type NW S Bit Type: Roller Bit Elevation 10 +/-Inside Diameter (in.) 1 3/8 3.0 Drill Mud: None Datum Portland City Datum Casing: NW drive to 12.0 ft. Hammer Weight (lb) 300 140 Location See Plan Hoist/Hammer: Winch Doughnut Hammer Hammer Fall (in.) 30 30 PID Make & Model: Gravel Sand Field Test Sampler Blows per 6 in. ISCS Symbol **VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION** S (E) Sample Depth (ft) Depth (ft) Stratum Change Elev/Depth (% Medium Toughness Sample I & Rec. (i Coarse Plasticity Coarse Dilatancy % Fines (Density/consistency, color, GROUP NAME, max. particle size*, Fine Fine structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION) % % % % Medium dense, brown, silty SAND (SM), mps 1.0 in., no structure, no odor, 30 30 20 SM 2 \$1 0.0 22 5 2.0 -FILL-13 6 30 30 20 15 SM Dense, gray to brown, silty SAND (SM), mps 1.0 in. trace brick fragments, 13 S2 2.0 17 21 cinders, wood, no structure, cinder odor, moist 4.0 17 18 SM Medium dense, gray to brown, silty SAND (SM), mps 1.0 in. trace brick 30 30 20 15 5 **S3** 4.0 20 fragments, cinders, wood, no structure, cinder odor, moist 6 6.0 5 5.0 9 SW Medium dense, light brown, well-graded SAND (SW), occasional silt 5 30 35 30 10 pockets, mps 0.5 in., no structure, no odor, moist SW Very loose, brown, well-graded SAND (SW), occasional pockets of dark 5 30 35 30 6 S4 6.0 16 gray sandy silt, mps 0.25 in., no structure, no odor, moist 2 8.0 2 2 20 25 25 20 3 S5 8.0 SM Loose, dark brown, silty SAND with gravel (SM), mps 1.0 in., no structure, 5 5 no odor, wet 4 10.0 -FILL-3 4 Medium dense, dark brown, silty SAND with gravel (SM), mps 1.0 in., no 20 25 SM 5 5 25 20 5 S6 10.0 structure, no odor, wet, trace brick and shell fragments 4 12.0 7 5 Loose, dark brown, silty SAND with gravel (SM), mps 1.0 in., no structure, SM 5 4 **S7** 12.0 12.3 5 95 no odor, wet, trace brick and shell fragments 2 14 14.0 2 Soft, gray, sandy SILT (ML), little shell fragments, trace clay, frequent 5 partings along fine sand seams, no odor, moist 14.0 -HARBOR BOTTOM DEPOSIT-BOTTOM OF EXPLORATION Water Level Data Well Diagram Summary Sample ID Riser Pipe Depth (ft) to: Elapsed O - Open End Rod Overburden (ft) 14.0 Time (hr.) Bottom | Bottom Date Screen T - Thin Wall Tube Water Rock Cored (ft) 0 of Casing of Hole Filter Sand U - Undisturbed Sample Cuttings Samples **7**S N/A S - Split Spoon Sample Grout HA08-6 Concrete **Boring No.** Bentonite Seal Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High **Field Tests:** Dry Strength: N - None L - Low M - Medium H - High V - Very High Toughness: L - Low M - Medium H - High *Note: Maximum particle size is determined by direct observation within the limitations of sampler size. Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1

10 Sep 08

G:/PROJECTS\35611\FIELD PROGRAM\35611-000 TB.GPJ

HA-TB+CORE+WELL-07-1.GDT

HA-LIB07-1R-POR-06-03-08.GLB

F	IAL LD	EY& RICI	z H				TEST	BORING REPOR	RT		В	orir	ng	No) .	HA	\$08	-7	(O	W
Pro Clie Cor		Main	e Me	edical	Jnited W Center Sorings, 1	Ť	velopment	, Portland, Maine			Sh Sta	e No neet art	No	. 1 3	0 Ju	4 ıly :	200			
				Casi	ng Sai	mpler	Barrel	Drilling Equipment	and Procedures			nish iller			1 Ju 1. P		200 er	8		
Тур	e			NV	v	s	NQ	Rig Make & Model: Mob	ile Drill B-50 Bombard	ier	Н8	kA F	₹ер	. O). L	awl	or			
Insid	de Dia	meter	(in.)	3.0) 1	3/8	2.0	Bit Type: Roller Bit Drill Mud: None				evat atum					`itv	Da	atııı	m
		Weight		300		140	-	Casing: NW drive to 62. Hoist/Hammer: Winch				cati								_
Han		Fall (in	.)	30		30	-	PID Make & Model:				.1	_				_		_	_
€	Blow in.	(in.)	e €	(")	; ¥8	Symbol	VI	SUAL-MANUAL IDENTIFICAT	ION AND DESCRIPTION	l		avel		Sano E			F	Ŋ	Te	Т
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (#)	Well Diagram	Stratum Change Elev/Deoth (ft)	uscs s	(Den	sity/consistency, color, GROUF structure, odor, moisture, o GEOLOGIC INTERF	ptional descriptions	ze*,	% Coarse	% Fine	% Coarse	% Mediu	% Fine	% Fines	Dilatancy	Toughness	Plasticity	
0 -	6 12 13	S1 15	0.0			SW- SM	mps 0.25	dense, dark brown, well-graded in., intermixed with 10% ash no odor, moist							20				==	Ī
	6 12 21 25	S2 16	2.0 4.0	N 1		SW- SM	in., inter	-FILL- ark brown, well-graded SAND mixed with 10% ash and brick, ets, no structure, no odor, mois	trace wood, occasional s				30	40	20	10				
5 -	5 7 12 9	S3 24	4.0 6.0	F. 7 F		SM		dense, brown, silty SAND (SM cinder and ash fragments, no -FILL-					20	30	30	20				
	3 4 5 2	S4 24	6.0 8.0		6.2	SM SM	\cinder an	rown, silty SAND (SM), mps 0 d ash fragments, no structure, ray, silty SAND (SM), mps 4.0	no odor, moist	/	 		20 20	30 30	30, 25	20 25			<u> </u>	
	7 15 14 10	\$5 20	8.0 10.0		8.0	s w		dense, light brown, well-graded are, no odor, wet -FILL-	I SAND (SW), mps 1-3/	3 in.,			35	30	30					
10-	3 2 2 2	\$6 10	10.0		10.0	SM		se, gray, silty SAND (SM), train no odor, wet	ce clay, mps 4.0 mm, no		- -		20	30	30	20	-		-	
}	1	S7	12.0	-		SM	Very loos	se, gray, silty SAND (SM), tra	ce clay, mps 4.0 mm, no				20	30	30	20				
	1 2	17	14.0		12.5	OL/ OH	structure,	no odor, wet brown, ORGANIC SILT (OL			厂	Н				95			T	t
	1				14.0			nm, no structure, organic odor -HARBOR BOTTOM	, wet	.113,										
15-	4 4 4 7	NR	14.0 16.0		14.0		Note: No	o recovery, probable gravel pus		ay.										
	2 3 4	S8 24	16.0 18.0			CL	1	stiff, mottled olive-gray, lean C no odor, moist		ı, no						100				
	7					20		-GLACIOMARINE	DEPUSII-											
20																			<u>_</u>	
_			T	_evel		oth (ft)	to:	Sample ID O - Open End Rod	Well Diagram Riser Pipe	Over	rhur			ma \		<u> </u>				-
D:	ate	Time	1	e (hr.	Bottom of Casing	Bottor	n Water	T - Thin Wall Tube	Screen Filter Sand	Rock			٠.	•		52.0 10.0				
								U - Undisturbed Sample S - Split Spoon Sample	Grout Concrete	Sam Bor i	ples	<u> </u>	1	4S,	, 20		-7(OV	<u>V)</u>	_
Field	i Tests	<u> </u>	<u></u>				S - Slow	N - None Plastic	Bentonite Seal ity: N - Nonplastic L - Le	ow M - I	Medi	um	Н-	High	1				_	_
			partic	Tou	ighnéss:	L - Low	M - Mediu	m H - High Dry Str servation within the limitation	ength: N - None L - Lov	/ M - Me	ediun	n H	- Hi	gh	V -	Very	/ Hig	h		_

F		EY& RIC	H				TEST BORING REPORT	F	ile	No	, No.	3561	1-00		-7(C)W	V
ť)	ows.	Š.(-;	mæ	am	€	loqu	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	_	ave	1	San			F	ield		3
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	(Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	*****
- 20 -	WOR WOH WOH	S9 24	20.0 22.0			CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist FV1 (20.3-21.0 ft), Su = 830/320 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
25 -							FV2 (25.3-26.0 ft), Su = 730/170 psf										
	WOH WOH WOH WOR	S10 24	30.0 32.0			CL	Medium stiff, gray, lean CLAY (CL), occasional partings along fine sand seams, no odor, moist FV3 (30.3-31.0 ft), Su = 680/280 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
35 -							FV4 (35.3-36.0 ft), Su = 870/210 psf										
40	5 5 9 19	S11 2	40.0 42.0		38.0	SM	Medium dense, gray, silty SAND with gravel (SM), mps 1-3/8 in., well bonded, no odor, wet -GLACIAL TILL-	5		15	30	30	20				
45	12 8 9 10	S12 21	45.0 47.0			SM	Medium dense, gray, silty SAND with gravel (SM), mps 1-3/8 in., well bonded, no odor, wet -GLACIAL TILL-	5	5	15	25	30	20				
							nanual methods of the USCS as practiced by Haley & Aldrich, Inc.				No		 	108	711	שכ	

I-		EY&	H				TEST BORING REPORT	F	ile	No. et N	3 lo.	561 3	1-00	4	51.		
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	g,	San Enipal %		% Fines		Toughness a	Plasticity a	
- 50 -	8 6 9 16	S13 22	50.5 52.5				Note: Drilled through cobble from 50.1 to 50.5 ft. Medium dense, silty SAND with gravel (SM), mps 1-3/8 in., well bonded, no odor, wet -GLACIAL TILL-	5	5	30	25	20	15				
- 55 -																	
- 60 -	40 75 125 50/1",	S14 12	60.0 61.6		60.1		Very dense, silty SAND with gravel (SM), mps 1-3/8 in., well bonded, no odor, wet, 1/2 to 1-3/8 in. fragments of weathered CHLORITE SCHIST -WEATHERED BEDROCK- Note: Bedrock encountered at 61.6 ft. Advanced roller bit to 62.0 ft. Begin NQ rock core at 62.0 ft. See Core Boring Report for details.	5	5	15	25	35	15				
- - 65 - -							Notes: 1. FV1 (20.3-21.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.				:						
- - 70 - -		:		:													
		- SEC															
	NOTE:	Soil id	entificat	tion ba	ased on v	isuai-n	nanual methods of the USCS as practiced by Haley & Aldrich, Inc.	В	ori	ng	No.	<u></u>	HA	108 -	7(0	 >W	

HALEY& ALDRICH

CORE BORING REPORT

Boring No. HA08-7(OW)
File No. 35611-000
Sheet No. 4 of 4

Z MILI	DICIC	<u> </u>	-	-				Sheet No. 4 of 4
Depth	nate	Run	Run Depth	Recove	ry/RQD		Elev./ Depth	Visual Description
(ft)	(min./ft)	No.	(ft)	in.	%	ering	(ft)	
	2	<u> </u>	62.0	26	1			SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
	2	C1	62.0 67.0	36 6	60 10			Moderately hard, moderate to highly weathered, dark gray, aphanitic SILTSTONE. Foliation is extremely thin, high angle to vertical. Primary joint set is parallel to foliation high angle to vertical, close to extremely close, rough, stepped to undulating, fresh to discolored with pyrite, tight.
	2						:	discolored with pyrite, tight.
65 -	2							
	2			:				
	2	C2	67.0 72.0	24 0	40 0		67.0	Note: Recovery consists of 1.0 to 3.0 in. pieces and fragments of hard, dark gray, slight weathered, aphanitic SILTSTONE, due to extremely close fracture spacings and drill
	2							action.
70	3							
70 –	3							Note: Advanced roller bit to 70.6 ft. to flush unrecovered rock fragments. Borehole cav to 65.0 ft after removal of drill rods.
								to 65.0 it after removal of drift rods.
	2						72.0	BOTTOM OF EXPLORATION
								Note: Observation well installed in completed borehole. See installation report for details
75 —								
:								
80 –								
						:		
85 -								
90 -								

F	IAL LD	EY& RICI	z H	<u>-</u>			rest	BORING REPOR	RT			В	ori	ng	No) .		HA	108	8-8	
Clie	ject ent ntracto	Main	e Med	Ith/Unite lical Cen est Borin	ter		elopment	, Portland, Maine				St St	e N neet art nish	No). 1 6	561 of Au	3 gus	t 20			
				Casing	Sam	pler	Barrel	Drilling Equipment	and Proce	edures			iller			Au 1. P			08		
Тур	e			HW	S			Rig Make & Model: Mob	ile Drill B-	50 Bombard	ier	Нδ	£А Г	Rep). C). L	awl	or			
Insid	de Dia	meter	(in.)	4.0	1 3	/8		Bit Type: Roller Bit Drill Mud: Bentonite				1			-	+/ rtlar		¬itv	Da	tur	•
Ham	nmer V	Veight	(lb)	300	14	ю	•	Casing: HW Drive to 50				_				ee I			Da	tun	<u>. </u>
Han		all (in	.)	30	30		•	Hoist/Hammer: Winch I PID Make & Model:	Dougnnut H	iammer											
£)	lows	9 E	e ((£)	Symbol		VISU	AL-MANUAL IDENTIFICATION	N AND DESC	CRIPTION		-	avel	 	San	d			ield σ	Tes	<u>t</u>
Depth (ft)	ler Bi	ple I	Sample Depth (ft)	ratun Panga Pepth	Syn		(Density	/consistency, color, GROUP N			,	Coarse	و	Coarse	diun	ē	səı	ancy	hnes	city	af t
Del	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sa	Stratum Change Elev/Depth (ft)	nscs			structure, odor, moisture, optio GEOLOGIC INTERPRE	onal descript ETATION)	tions		လ လ	% Fine	ပ္သိ %	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Stren
0 -	2	S1	0.0	0.2	sw			-TOPSOIL-				5	5	=	40	=	Ě		\exists	=	Ë
	10 13 14	5	2.0					, light brown, well-graded SAN e, no odor, moist	ID with grav	vel (SW), mp	s 0.25			50	10	20					
11 S2 2.0 14 16 4.0 Dense, gray-green, silty SAND with gravel (SM), mps 1 3/8 in., no structure, no odor, moist, reworked till -FILL- NOTE: Augered through cobble from 4.0 - 4.7 ft.												5	5	25	25	25	15				
NOTE: Augered through cobble from 4.0 - 4.7 ft.											_										
SM Very loose, gray-green, silty SAND with gravel (SM), mps 1 3/8 in., r structure, no odor, moist, reworked till -FILL-									no	5	5	25	25	25	15				! 		
	2 2 4 3	\$4 19	7.0 9.0		SM			een, silty SAND with gravel (S dor, moist, reworked till -FILL-	SM), mps 1 3	3/8 in., no		5	5	25	25	25	15				Ī
10-	3 1 1	S5 13	9.0 11.0	9.5	OL/ OH			gray, ORGANIC SILT (OL/C 4.0 mm, no structure, no odo -HARBOR BOTTOM I	r, wet	nd, glass and	i shell					5	95				
	6 13 4 6	\$6 19	12.0 14.0		OL/ OH	I		dark gray, ORGANIC SILT (, mps 4.0 mm, no structure, no		ace sand, gla	ss and					5	95				
15 -	2 3 4 7	S7 24	14.0 16.0	13.8	CL			olive-gray, silty lean CLAY (C mps 0.25 in., no structure, no -GLACIOMARINE D	odor, moist		nal		5				95	N	L	L	
	WOR WOH WOH WOH	S8 24	16.0 18.0	20	CL			n CLAY (CL), mps 2.0 mm, no 0 ft), Su = 460/70 psf -GLACIOMARINE D		no odor, wet							100	N	L	L	
	011							SENCIONING D													
20 -		Wa	ter Le	vel Data				Sample ID		Diagram			5	Sum	nma	ry					_
Da	ate	Time	Elap Time	(hr Bo	ttom	n (ft) f Bottom of Hole	Water	O - Open End Rod T - Thin Wall Tube	Sc Sc Fi	iser Pipe creen Iter Sand	Over Rock			•	•	5	50.5 0	5			
8/7	7/08				-	50.5	9.0	U - Undisturbed Sample S - Split Spoon Sample	G AA C	uttirigs rout oncrete	Sam Bori				138,	2U		.08	-8		
Field	l Tests:	;	1	Dilatano	y: R-	Rapid	S - Slow	N - None Plastic	ity: N - Nori	entonite Seal plastic L - Lo	w M-N						Vo-	, Li:-			_
*Not	te: Max	dmum p	particle	size is d	etermi	ned by	direct ob	m H - High Dry Str servation within the limitation sual-manual methods of th	s of sample	lone L-Lov rsize.							very	/ Hig	n_		

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB-CORE+WELL-07-1.GDT G.PROJECTSUS611/FIELD PROGRAMM35611-000 TB.GPJ 10 Sep 08

A	IAL LD	Sampler Blows Sample No. & Rec. (in.) Sample Sample Sample Depth (ft)										561	1-00 of		08-	8
Depth (ft)	Sampler Blows per 6 in.	mple No. Rec. (in.)	sample epth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions	+	avel	g g	San	d		F	Ś	Plasticity a	
20 -	P U S H	ທັ≪ U1 18	20.0 22.0	ä	SN	GÉOLOGIC INTERPRETATION) FV2 (22.3-23.0 ft), Su = 610/50 psf	%	%	%	%	%	%	ia	To	ā	
25 -	WOR WOH WOH	S9 24	25.0 27.0		CL	Very soft, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet -GLACIOMARINE DEPOSIT-						100				
30 -	WOR WOR 1 WOH	S10 24	30.0 32.0		CL	Soft, gray, lean CLAY (CL), mps 2.0 mm FV3 (30.3-31.0 ft), Su = 380/120 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
	WOR WOR WOR WOR	S11 24	35.0 37.0		CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm FV4 (35.3-36.0 ft), Su = 780/150 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
40 ~	P U S	U2 24	41.0 43.0			FV5 (39.3-40.0 ft), Su = 1,030/80 psf										
45 -	H 2 6 6 7	S12 18	43.0 45.0	43.0	SP -	Medium dense, gray, poorly-graded SAND (SP), trace gravel, mps 0.5 in., no structure, no odor, wet -GLACIOMARINE DEPOSIT-	5		20	30	45			_	- -	
45 -				48.6		Note: Casing refusal on probable bedrock at 48.6 ft.										
						-WEATHERED BEDROCK-										

HALEY& ALDRICH		TEST BORING REPORT	ΙF	ile	ing No. et N	3	3561	1-00	HA 00 3		8	
Slows In.)	E e e e e e e e e e e e e e e e e e e e	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	Gra	ave		San	d	Ţ	_	ield		Т
Sampler Blows per 6 in. Sample No. & Rec. (in.)	Stratum Change Elev/Depth (ft)	(Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	
0 100/17 S13 50.	50.5	Weathered Rock fragments -WEATHERED BEDROCK- Note: Split spoon refusal BOTTOM OF EXPLORATION Notes: 1. FV1 (22.3-23.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.										

A	LD	EY&	E H				TEST	BORING REPO	RT				ori	_	INC). 		HA	¥08	3-9
Clie	ent ent entracto	Main	e Me	alth/Un edical C Fest Bor	enter	•	velopment	, Portland, Maine				St	le N neel art nish	No). 1 2	561 of 4 Ju 4 Ju	1 ily :	200		
				Casing	Sa	mpler	Barrel	Drilling Equipme	nt and P	rocedures			riller			1. P			0	
Тур	е			NW		S		Rig Make & Model: Mo	bile Dril	B-50 Bombard	ier	H	&A I	Rep). C). L	awl	or		_
Insid	de Dia	meter	(in.)	3.0	1	3/8		Bit Type: Roller Bit Drill Mud: None					eva atun					~itv	Da	atıı
Han	nmer \	Neight	(lb)	300		140	-	Casing: NW drive to 1		. **			cat						<i>D</i> 0	itu
Han		Fall (in	.)	30		30	-	Hoist/Hammer: Winch PID Make & Model:	Dougnn	ut Hammer										
£	lows	9 <u>-</u>	o €	5 6	Svmbol		VISU	IAL-MANUAL IDENTIFICATION	ON AND E	DESCRIPTION			avel	-	San				ield	
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample	Stratum	USCS Svr		(Density	//consistency, color, GROUP structure, odor, moisture, op GEOLOGIC INTERPI	tional des	criptions	,	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Placticity
0 -	2	S1	0.0		GN	1 Loc		own, silty GRAVEL with sar	d (GM),	mps 0.5 in., no			45	-		_		Ħ	Ė	F
	3 5	3	2.0			stru	cture, orga	nic odor, wet -FILL-												
	6																			
	4	S2 22	2.0 4.0		'	Not	e: Sample	composed of cinder and ash f	rom 2.0 t	o 3.0 ft.						11				Γ
	9		4.0	3.				, gray, silty SAND (SM), trac	e gravel,	mps 0.25 in., no			5	30	30	20	15	-		-
	11	S3	4.0	4	SM	1	cture, no o	dor ilty SAND (SM), mps 0.25 in	no eterr	oture no odor -	noist			10	20	30	30			
5 ~	1 3 3 3	22	4.0 6.0		314		isc, gray, si	FILL-	., no su u	cture, no odor, n	ioist			10	30	30	30			
	1 2	S4 16	6.0		SM		se, gray, si r, moist	lty SAND (SM) with gravel,	mps 0.25	in., no structure	, no	5	5	15	30	15	30			
	3					Not	e: Ground	water encountered at 7.1 ft.												
	WOH S5 8.0 SM Loose, gray, silty SAND (SM) with gravel, mps 0.25 in., no structure, moder, moist						, no	5	5	15	30	15	30							
10-	11							-FILL-												
10-	4 5 3 2	\$6 8	10.0 12.0	1	SM			Ity SAND (SM) with gravel, ace wood and glass fragments		in., no structure	, no	5	5	20	30	25	15			
	2 3	S7 2	12.0 14.0		MI		dium stiff, o	dark gray, SILT (ML), trace vet	wood, mp	s 2.0 mm, no str	ucture,					5	95			
	4 5		11.0				·	-HARBOR BOTTOM	DEPOSI	Т-										
15-	5 4 6 5	\$8 20	14.0 16.0		CI	Stif	f, gray, lea	n CLAY (CL), mps 2.0 mm, -GLACIOMARINE		,	ist						100			
				16.0) 	+	-	BOTTOM OF EXPL	ORATIO	N			\vdash			H		Н		\vdash
						Not		eight of Hammer.												
		141		nucl D	<u></u>			T	1 141	all Diagram		_	<u> </u>	<u></u>	<u></u>	<u></u>	L			L
	-46		T	evel Da		oth (ft)	to:	Sample ID O - Open End Rod		ell Diagram Riser Pipe	Overt) r			ıma 1		16.0			_
Da	ate	Time		e (hr 1	Sottom Casing	Botto	n Water	T - Thin Wall Tube		Screen Filter Sand	Rock			•	•	1	10.U	,		
7/2	4/08	1315	0	.25	14.0	16.0	T	U - Undisturbed Sample S - Split Spoon Sample	93.	Cuttings Grout Concrete	Samp	les	3		8			.08	<u>-9</u>	
				Direct:	5	De-11	C C'	Al Niggo PitAl		Bentonite Seal	Bori				LI:-'				_	
Field	l Tests	:					S - Slow M - Mediu	N - None Plasti m H - High Dry S	city: N - trenath:	Nonplastic L - Lo N - None L - Low	ow M-N ≀M-Me⊪	edi: diun	um n H	н - I - Н	rligh iah	۱ ٧-١	Verv	/ Hia	h	

F	IAL LD	EY& RICI	z H			•	TEST	BORING REPOR	RT			В	ori	ng	No).]	HA	.08	-10)
Clie	ject ent ntracto	Main	e Med	th/Unite ical Cen est Borin	iter		elopment	, Portland, Maine				Sh St	art	No). 1 7	561 of Au	3 gus	t 20		_	
				Casing	Sam	pler	Barrel	Drilling Equipment	and P	rocedures		l	nish iller			Au 1. P			80		
Тур				HW	S			Rig Make & Model: Mob	le Dril	B-50 Bombard	ier). L					
Insid	de Dia	meter	(in.)	4.0	1 3	/8		Bit Type: Roller Bit Drill Mud: Bentonite								+/ rtla		٠:٠٠.	Da	4	
Han	nmer V	Veight	(lb)	300	14	0	-	Casing: HW drive to 49.								ee l			Da	tuii	<u>-</u>
Han		-all (in	.)	30	30)	•	Hoist/Hammer: Winch I PID Make & Model:	Joughn	ut Hammer											
£	lows I.	.) S G II.)	e ⊋î	£ £	Symbol		VISU	IAL-MANUAL IDENTIFICATION	I AND I	DESCRIPTION		\vdash	avel		San				ield σ	Te	st_
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	SSyr		(Density	/consistency, color, GROUP N	AME, m	ax. particle size*	,	% Coarse	<u>و</u>	Coarse	% Medium	Fine	Fines	Dilatancy	Toughness	icity	ŧ
Ď	Samp	Sar & R	ကို လိ	Eev C Si	nscs			structure, odor, moisture, optic GEOLOGIC INTERPRE	TATIO	Scriptions N)		ŏ %	% Fine	\ \%	W %	% Fi	% Fi	Dilat	Toug	Plasticity	Strength
0 -	5 8 17	S1 20	0.0 2.0		ML			olive-gray, sandy SILT (ML), ed, no odor, moist - till fill -FILL-	trace g	ravel and brick, 1	nps		5			20				=	
	21	50		2.0	SM	Mad	lium dance	, olive-gray, silty SAND (SM),		roval 0 25 i		Ļ.	<u> </u>	15	20	30	30		-		_
	17 15 14 12	S2 23	2.0 4.0		SIVI		cture, no oc		trace g	raver, mps 0.23 i	п., по		,	13	30	30	20				
	2 2	S3 19	4.0 6.0		SM		se, olive-gr	ray, silty SAND (SM), trace grader wet	avel, m	ps 0.25 in., no			5	15	30	30	20				
5 -	3 3	19	0.0				·	-FILL-													
	3 5 8 15	S4 12	6.0 8.0		SM		lium dense, cture, no oc	olive-gray, silty SAND (SM), dor, wet -FILL-	trace g	ravel, mps 0.25 i	n., no		5	15	30	30	20				
	8	S5	8.0	8.0	OL/			in spoon tip with creosote-like of		SH T (OL (OH)		_	_	10	10	10	70		\dashv	_	
	6 6 3	7	10.0		ОН		k and metal			, ,,	irace										1
10-	1 2 2	S6 24	10.0 12.0	11.3	OL/OH	Soft	, dark gray	to black, sandy ORGANIC SII -HARBOR BOTTOM I			s						100	N	L	L	<u> </u>
	2 3 3 4	S7 15	12.0 14.0	11.3	CL		lium stiff, g cture, no oc	gray, silty lean CLAY (CL), tra dor, moist -GLACIOMARINE D			0					5	95	N	L	L	
15 -																					
	WOR WOR	S8 24	19.0		CL	Med wet	lium stiff, g	gray, lean CLAY (CL), mps 2.0) mm, 1	no structure, no o	dor,						100	N	L	L	
20	WOR		21.0	vel Data		wet		Sample ID	W	ell Diagram				Lun	nma	ln/					=
D-	ate	Time	Elap	sed	Depth			O - Open End Rod		Riser Pipe	Over	bur				-	19.5	 ;			_
	ale	111116	Time			Botton of Hole		T - Thin Wall Tube		Screen Filter Sand	Rock			•	•		0	•			
								U - Undisturbed Sample S - Split Spoon Sample	n 4.°	Cuttings Grout	Sam				12S	, 1U		00	10		
										Concrete Bentonite Seal							1A	08-	10		
Field	i Tests	:					S - Slow M - Mediu	N - None Plastic m H - High Dry Str	ty: N - ength:	Nonplastic L - Lo N - None L - Low	ow M - N	/ledi	um n H	H - - H	Hig ligh	h V -	Verv	Hia	h		
'No	te: Ma:	ximum į	particle	size is d	etermi	ned b	v direct ob	servation within the limitation sual-manual methods of th	s of sai	npler size.							_	_			_

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB-CORE+WELL-07-1.GDT GAPROJECTS/35611/FIELD PROGRAM/35611-000 TB.GPJ

10 Sep 08

F	IAL LD	EY& RIC	H			TEST BORING REPORT	F	ile	No		561 2	1-00		08- 1	10
£	llows		e €	E 9 F	Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	Gr	ave	1	San	d		F	ield 9	Te
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Syl	(Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity
20-	WOH WOH					FV1 (19.3-20.0 ft), Su = 520/110 psf	F		Ħ	Ħ	F	Ħ	Ħ		Γ
	WOII					-GLACIOMARINE DEPOSIT-									
		-				FV2 (23.3-24.0 ft), Su = 730/130 psf	:								
25 -	P U	U1 22	25.0 27.0			Note: Wood fibers observed in wash water from 24.5 to 25.0 ft.									
	S					FV3 (27.3-28.0 ft), Su = 400/90 psf		8							
30 -	WOR WOR WOR WOR	S9 24	30.0 32.0		CL	Very soft, gray, lean CLAY (CL), mps 2.0 mm, occasional fine sand partings, no odor, wet FV4 (30.0-31.0 ft), Su = 220/70 psf -GLACIOMARINE DEPOSIT-					5	95	N	L	L
35 -	WOR WOR 3 2	S10 24	35.0 37.0	35.2	CL SM	Very soft, gray, lean CLAY (CL), mps 2.0 mm, occasional fine sand partings, no odor, wet			5	10	5 70	95 15	N	L_	L
40 -	5 2 7 7	S11 6	40.5 42.5		SW- SM	Loose, gray, well graded SAND with silt (SW-SM), mps 0.25 in., no structure, no odor, wet -GLACIOMARINE DEPOSIT-	5	5	255	25	30	10			
45 -	9 9 5	S12 6	45.5 47.5	45.5	SP- SM	Medium dense, gray, poorly graded SAND with silt (SP-SM), mps 0.25 in., no structure, no odor, wet, schist fragment in tip of spoon -GLACIAL TILL-	5	5	5	25	50	10			
	6			47.5	BR	-WEATHERED BEDROCK-									
				49.5			L	L	L	L	Ш				_
	NOTE:	Soil id	lentificat	tion base	d on vi	sual-manual methods of the USCS as practiced by Haley & Aldrich, inc.	В	ori	na	No		1	HA	08-1	0

HALEY&ALDRICH TEST BORING REPORT Borring No. 160
Note: Roller cone refusal. BOTTOM OF EXPLORATION Notes: 1. FV1 (19.3-20.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details.
Note: Roller cone refusal. BOTTOM OF EXPLORATION Notes: 1. FV1 (19.3-20.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details.
Note: Roller cone refusal. BOTTOM OF EXPLORATION Notes: 1. FV1 (19.3-20.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details.

F	IAL LD	EY& RIC	æ H				TEST	BORING REPOR	RT		В	orii	ng	No) .]	HA	08-	-11	
Clie	ject ent ntracto	Main	e Med	lical Ce	nter	•	velopment	, Portland, Maine			Sh Sta	art	Νo	. 1		3 lly 2	2008			
				Casing	Sam	npler	Barrel	Drilling Equipmen	t and Procedures			iish Iler			9 Ju 1. P		2008 er	3		
Тур	е			NW		s		Rig Make & Model: Mot	ile Drill B-50 Bombardi	er	Н8	A F	Rep	. O	. L	awl	or			
Insi	de Dia	meter	(in.)	3.0	13	3/8		Bit Type: Roller Bit Drill Mud: None				evat turr			1 + rtlar		City	Da	tum	
	nmer f	_	· '	300 30	3	40 60	-	Casing: NW drive to 55 Hoist/Hammer: Winch PID Make & Model:			LO	cati			ee I					
€	Slows n.	S (E)	⊕ €	E 9 E	Symbol		VISU	IAL-MANUAL IDENTIFICATIO	N AND DESCRIPTION		Gra	vel	-	Sano	г			ဖွ	Test	
Depth (ft)	Sampler E per 6 i	Sample & Rec.	Samp Depth	Stratum Change Elev/Depth (ft)	USCS Sy		(Density	/consistency, color, GROUP N structure, odor, moisture, opti GEOLOGIC INTERPR	onal descriptions		% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	
0 -	3 10 13	S1 22	0.0 2.0		SM	inte		, brown, silty SAND with graven 10% brick, cinders, and plas		e, no	5	5	25	30	20					
i	16 34 29	S2 24	2.0 4.0		SM			-FILL- eosote colored, silty SAND wi h 30% wood, brick, and cinder			5	5	25	30	20	15				
	29			4.1	0.4				1 1000 0.55		5				20	15				
- 5 -	12 20 18 13	S3 24	4.0 6.0	4.1	SW	\inte Den	rmixed with	eosote colored, silty SAND wing 130% wood, brick, and cinder own, well-graded, SAND (SW	rs, no structure, no odor,	noist 🥤			25	30	45					
	7 7 6	Maine Medical ractor Maine Test E Casi NV	7 S4 6 7 16 8			sw		lium dense, cture, no oc	, gray-brown, well-graded SAI dor, wet	ND (SW), mps 0.25 in., n	0			30	35	35				
	7 11 18				sw		dium dense, odor, wet	, gray, well-graded SAND (SV	V), mps 0.25 in., no struc	ure,			35	30	30					
10-	2 4 6				sw	1 '		rell-graded SAND (SW), mps (rs reworked, no structure, no c	•	ckets,			30	30	30	10				
				}		Not	e: Organic	s observed in wash water from	12.0 to 12.5 ft.											
	3			12.5	SM		se, gray, si cture, no oc	lty SAND (SM), mps 0.25 in. dor, wet -HARBOR BOTTOM)			10	10	55	25				
	7			14.2	CL			gray, silty lean CLAY (CL), moccasional brown mottles	nps 4.0 mm, no structure,	no						100			_	
15 -	2 2				CL	Soft		CLAY (CL), mps 4.0 mm, fi		sand										
20 -		Wa	ater Le	vel Dat	<u>a</u>			Sample ID	Well Diagram				Sum	ma	ry_					
D	ate		Elap	sed Bo		th (ft) Bottor of Hol	n Water	O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample	Riser Pipe Screen Filter Sand Cuttings	Overl Rock Samp	Со	den red	(ft))	5	55.0 0)			
	I Tarto			Dilatan	nv. P	Ranid	S - Slow	S - Split Spoon Sample N - None Plastic	Grout Concrete Bentonite Seal	Bori	ng	No			F	IA	08-	11		
	LOCTO	:						IN- INDIE PIASU	rength: N - Nonplastic L - Low					nıgr	1					

	HA ALI	LEY DRIC	/& CI	z H			TEST BORING REPORT	F		No.	3	561	1-00 of	00	08-1	11	
	NS MS	· o	ज़		€	ō	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	-	avel		San			_	ield	Tes	 st
C Depth (#)	ြိတ္တိ	Sample No.	& Rec. (in	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	(Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
- 25	WO WO WO	H 24 H		25.0 27.0		CL	Medium stiff, gray, silty lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist FV1 (25.3-26.0 ft), Su = 720/170 psf -GLACIOMARINE DEPOSIT-						100	N	L	N	
- 35	2 3 2 2	S10 19		35.0 37.0	34.0	SP- SM	Note: Drill action indicates probable gravel from 34.0 to 35.0 ft. Fine gravel observed in wash water. Loose, gray, poorly-graded SAND with silt (SP-SM), trace gravel, mps 0.25 in., no structure, no odor, wet -GLACIOMARINE DEPOSIT-		5	-	5	80	10				
- 4 0	8 11 10 19			40.0 42.0		SP- SM	Medium dense, gray, poorly-graded SAND with silt (SP-SM), trace gravel, mps 1-3/8 in., no structure, no odor, wet -GLACIOMARINE DEPOSIT-	5			5	80	10				
- 45 - -	-		į														
-	NOT	E: Soil	l ide	entificat	ion base	d on vi	sual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.	В	ori	ng	No]	H	ΙA	[A08-1	IA08-11

H&A-TEST BORING-07-1 HALIB07-1R-POR-06-03-08.GLB HA-TB-CORE+WELL-07-1.GDT G:\PROJECTS\0.35611\FIELD PROGRAM\0.35611-000 TB GPJ 10 Sep 08

	HAL ALD	EY&	æ H			TEST BORING REPORT	F	Bori	No.	3	3561	1-00	HA()8-1	1	
\vdash			<u> </u>	=	_							of		اماما	Tar	\dashv
€		≥(≘)	<u>⊕</u> €	[문일부	Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION		avel	_	San			\Box	22	Tes	
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Sy	(Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
- 50	10 12 19	S12 9	50.0 52.0		SM	Dense, gray, silty SAND (SM), trace gravel, mps 0.5 in., bonded, no odor, wet		5			60	Ħ				
-	13			52.5		GLACIAL TILL- Note: Drill action indicates probable bedrock at 52.5 ft.										
-						-WEATHERED BEDROCK-										
- 55	-			55.0		Note: Casing refusal at 53.4 ft. Roller bit refusal at 55 ft. BOTTOM OF EXPLORATION									-	_

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

ALD	EY&	z H			•	TEST	BORING REPOR	RT			В	ori	ng	No).]	HA	08-	12	(OV
Project Client Contracto	Main	e Me	dical (nited W Center orings,	•	elopment	, Portland, Maine	,			Sh Sta	art	No	· 1	of 4 Ju	ly 2	2008		
			Casin	ng Sa	mpler	Barrel	Drilling Equipmen	t and Pro	cedures			nish iller				ly 2 orte		3	
Туре			NW		s		Rig Make & Model: Mob	ile Drill B	-50 Bombardi	er	Н8	kA F	Rер	. O	. L	awlo	or		
Inside Dia	meter	(in.)	3.0	1	3/8		Bit Type: Roller Bit Drill Mud: None								1 +		V:4	D	
Hammer \	Weight	(lb)	300		140		Casing: NW drive to 16									id C Ian	_	Dai	um
Hammer		.)	30	- 1	30	-	Hoist/Hammer: Winch PID Make & Model:	Doughnut	Hammer										
£ 0 .	9 .	mæ	ram	[ब्र	V	SUAL-MANUAL IDENTIFICAT	TON AND I	DESCRIPTION		_	avel	$\overline{}$	San				_	Test
Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Flev/Denth (#)	USCS Symbol	(Den	sity/consistency, color, GROUI structure, odor, moisture, o GEOLOGIC INTERI	ptional des	scriptions	:e*,	% Coarse	Fine	Coarse	% Medium	% Fine	Fines	Dilatancy	Toughness	Plasticity
0 4 10 7 7	S1 17	0.0 2.0	×	Ξ.	SM		dense, gray, silty SAND with a loo structure, no odor, moist -FILL-	gravel (SM		s, mps	5	5	% 10	$\overline{}$	35	$\overline{}$		-	<u>.</u>
5 11 15 9	S2 21	2.0 4.0			SM		dense, gray, silty SAND with a lers, mps 0.5 in., no structure,			vith	5	5	5	25	40	20			
3 6 10	S3 18	4.0 6.0		5.0	SM	15% cind	dense, gray, silty SAND with plers, mps 0.5 in., no structure, roundwater encountered at 5.4	no odor, n		vith	5	5			20	30			\perp
12			誾	1	SW	Medium	dense, light brown, well-grade		SW), mps 0.25	in.,			30	40	30				ł
7 11 12 11	S4 20	6.0 8.0			SW	Medium	are, no odor, moist dense, light brown, well-grade of fine sand, mps 0.25 in., no s			sional			30	40	30		:		
7 7 15 15	S5 22	8.0 10.0			sw		dense, gray, well-graded SAN , no odor, wet -FILL-		ps 0.25 in., no				35	35	30				
10 4 4 3	\$6 17	10.0 12.0			sw	Loose, grodor, we	ray, well-graded SAND (SW), t	mps 0.25 i	in., no structur	e, no			35	35	30				
2				11.6	ML		stiff, dark gray, SILT with san	d (ML), m	ps 4.0 mm, no			-	-	5	5	90	\dashv	\dashv	+
3 4 4 3	NR	12.0 14.0						• •		d in									
1	S7	14.0	<u> </u>	14.0	CL	Medium	-HARBOR BOTTOI stiff, gray with occasional brov			CL).		_	_		Н	100	\dashv	4	+
15 - 3 3 3	21	16.0					t fibers, mps 2.0 mm, no struct -GLACIOMARINE	ture, no od	or, moist	,~_,,									
			1	16.0			BOTTOM OF EXP	LORATIO	N						H	\dashv	\dashv	_	+
:							oservation well installed in con on Report for details.	npleted bor	ehole. See We	: 11									
	Wa	ater Le	evel C				Sample ID		Diagram			9	Sum	ma	ry			_	=
Date	Time	Elap	sed (hr.)	Bottom		1 Mater	O - Open End Rod T - Thin Wall Tube		Riser Pipe Screen	Overl			•	•	1	6.0			
7/24/09	-	+		of Casing	of Hole	VValer	U - Undisturbed Sample	1 200	Filter Sand Cuttings	Rock Samp			(ft) 7.	c	0			
7/24/08		J 0.	25	14.0	16.0	7.62	S - Split Spoon Sample		Grout Concrete	Bori).)8-	12(OV	V)
Field Tests	<u> </u> s:					S - Slow	N - None Plastic	ity: N - No	Bentonite Seal onplastic L - Lo	w M - N	ledi	um	Н-	High	١				
		artick	Toug	hness:	L - Low nined by	M - Mediu direct ob	m H - High Dry Str servation within the limitation	rength: N - ns of samp	None L-Low ler size.	M - Me			- Hi	igh	V - '	/ery	High	1	

HAA-TEST BORING-07-1 HALIB07-1R-POR-06-03-08.GLB HA-TB-CORE+WELL-07-1.GDT G.PROJECTSUS611/FIELD PROGRAMA36611-000 TB.GPJ 10 Sep 08

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Pro Clie Cor	•	Main	e Me	edical (·	velopment	, Portland, Maine			St	art	No	. 1 2	9 Ju	3 ıly 2	2008			•
				Casin	g Sa	mpler	Barrel	Drilling Equipmen	nt and Procedures			nish iller			9 Ju 1. P		2008 er	3		
Тур	e			NW		S	NQ	Rig Make & Model: Mol	bile Drill B-50 Bombard	ier	Н	kA I	Rep	. O). L	awl	or			
insid	le Dia	meter	(in.)	3.0	1	3/8	2.0	Bit Type: Roller Bit Drill Mud: None					tion n				City	Da	ntum	1
	nmer F	Veight Fall (in		300 30		140 30	•	Casing: NW drive to 46 Hoist/Hammer: Winch PID Make & Model:					ion							
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample	Stratum	Elev/Depth (ft) USCS Symbol	,		JAL-MANUAL IDENTIFICATION //consistency, color, GROUP Instructure, odor, moisture, opting GEOLOGIC INTERPRESE	NAME, max. particle size ional descriptions	ı	© Coarse	% Fine		% Medium		% Fines		Toughness	Plasticity a	
0 -	3 7 11 11	S1 20	0.0		SP SM	- Me		, dark brown, poorly-graded S ixed with 10% cinders -FILL-	AND with silt (SP-SM),	nps					20					
	14 11 10	S2 6	2.0 4.0		SP			, brown, poorly-graded SAND intermixed with 30% cinder a		kets,			30	40	20	10				
5 -	2 2 2	S3 8	4.0 6.0		SP			own, poorly-graded SAND (Si er and ash fragments -FILL-	P), mps 1-3/8 in., intermi	xed		5	30	40	25					
	1 4 3 3	\$4 6	6.0 8 .0) "	.0 GV			to red-brown, well-graded GR h 10% wood and glass fragme			30	35	10	10	10					
	5 3 1	S5 12	8.0 10.0		GF	Ver glas	y loose, grass and wood	ay, brown, poorly-graded GRA i, no structure, no odor, wet -FILL-	AVEL (GP), mps 1.0 in.,	trace	30	40	10	10	5	5				
10-	1 1 2 107	\$6 15	10.0 12.0		.0 MI			ay, sandy SILT (ML), mps 0.2 cure, no odor, wet -FILL-	25 in., trace wood and gla	 ss,	-		5	10	15	70				
	2	S7	12.:	12	.5 CI	_		through cobble from 12.0 to 1 gray, lean CLAY (CL), mps 2		dor.	-				_	100	N	M	М	
	3 3 4	24	14.5	1				nal brown mottles -GLACIOMARINE I		ŕ										
15 -														29						
20	1 1 1 1								I w :: 2:										*	
_				<u>evel D</u> psed		oth (ft)	to:	Sample ID O - Open End Rod	Well Diagram Riser Pipe	Over	hur		Sum (ft		_	16.6				
D:	ate	Time		e (hr.)	Bottom of Casing	Bottor	n Water	,	Screen Filter Sand	Rock	(Cc	red	l (ft)		9.4				
								S - Split Spoon Sample	Cuttings Grout Concrete Bentonite Seal	Sam Bori	•			.08,	2C F		08-	13		_
Field	Tests	:			ancy: R		S - Slow		city: N - Nonplastic L - L	ow M-I										

F	IAL LD	EY&	¥ H			TEST BORING REPORT	F	ile		3	561	1-00 of	0	08- 1	13	
_	SM	<u>ن</u> ن	_	Ê	2	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	_	avel	_	o. San		01	_	ield	Те	
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	(Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	•
20 -	WOR WOR WOH WOH	\$8 24	20.0 22.0		CL	Medium stiff, silty lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist FV1 (20.3-21.0 ft), Su = ~670/170 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	=
25 -						Note: Trace fine gravel observed in wash water. FV2 (25.3-26.0 ft), Su = 590/240 psf										
30 -	WOR WOR WOR WOH	S9 24	30.0 32.0		CL	Soft, gray, silty lean CLAY (CL), mps 2.0 mm, occasional partings along sand seams, no odor, moist FV3 (30.3-31.0 ft), Su = 280/250 psf					5	95	Z	L	L	
35 -						-GLACIOMARINE DEPOSIT- FV4 (35.3-36.0 ft), Su = 720/220 psf										
40-	4 2 2 4	S10 4	40.0 42.0	39.6	SP	Note: Sand observed in wash water and on drill rods. Very loose, gray, poorly-graded SAND (SP), mps 4.0 mm, no structure, no odor, wet -GLACIOMARINE DEPOSIT-		_		45	50	5	_			_
45 -																
				46.6		Note: Casing refusal at 46.6 ft. Advanced roller bit to 46.6 ft. Begin NQ rock core at 46.6 ft. See Core Boring Report for details. Notes: 1. FV1 (20.3-21.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.										
	L			<u> </u>		2 — weight of Drin Rous, wort — weight of Hammer.		_		_	<u></u>		L	<u>ᆜ</u>	13	1

HALEY& ALDRICH

CORE BORING REPORT

Boring No. HA08-13
File No. 35611-000
Sheet No. 3 of 3

	i							Sheet No. 3 of 3
epth	Drilling	Run	Run	Recove	ry/RQD	Weath-	Elev./	Visual Description
(ft)	Rate (min./ft)	No.	Depth (ft)	1	%	ering	Depth	and Remarks
	,		119	in	<u> </u> 76		(ft)	CEE TEST BARBIC BERART FOR AUTRRIDED STATES
ŀ	2	Cl	46.6	40	76			SEE TEST BORING REPORT FOR OVERBURDEN DETAILS Moderately hard, moderate to highly weathered, dark green, aphanitic CHLORITE
	2	Cı	51.0	0				SCHIST. Foliation is extremely thin, high angle. Primary joint set is parallel to foliation.
				•	•			SCHIST. Foliation is extremely thin, high angle. Primary joint set is parallel to foliation high angle, very close to undulating, fresh to discolored with pyrite, very tight to tight
	4							
	+							
	7							
50 -								
	3							
		C2	51.0	60	100		51.0	Malanda bad dialah makada fash dalam ashadi OM ODITE COMOT
	2	C2	56.0	42	70			Moderately hard, slightly weathered to fresh, dark green, aphanitic CHLORITE SCHIST. Foliation is extremely thin, high angle to vertical. Primary joint set is parallel to foliation
			50.0	٠	,,,			high angle to vertical, close to very close, smooth to polished, stepped to undulating, fresl
]	2							to discolored with pyrite, very tight to tight. Occasional extremely thin to thin, high angle
								to vertical quartz veins
	2							
	2							
								·
55 -	2							
							56.0	BOTTOM OF EXPLORATION
60 -								
- 50								
- 1								
65 - 70 - 75 -								
65 -								
1								
- 1								
i								
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70								
			ļ					
75 -		1	-	•				
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APPENDIX C

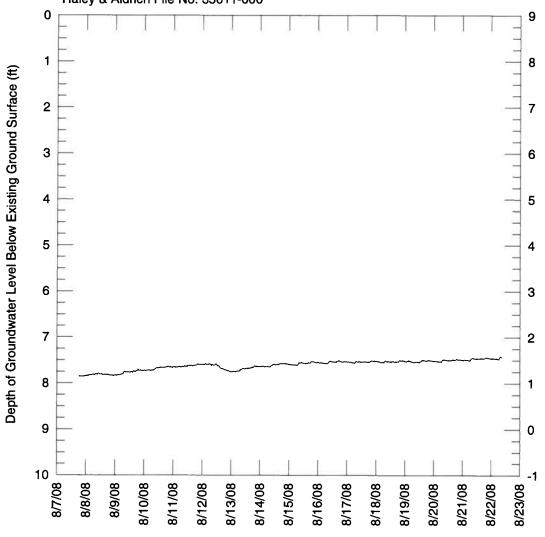
Observation Well Installation and Groundwater Monitoring Reports



OBSERVATION WELL Well No. HALEY&
ALDRICH HA08-5(OW) Boring No. INSTALLATION REPORT HA08-5(OW) PROJECT Maine Health/United Way Development H&A FILE NO. 35611-000 W. Chadbourne LOCATION Portland, Maine PROJECT MGR. O. Lawlor CLIENT Maine Medical Center FIELD REP. 8/1/2008 DATE INSTALLED CONTRACTOR Maine Test Borings, Inc. DRILLER WATER LEVEL M. Porter 9.0 +/-See Plan **Guard Pipe** Ground El. Location El. Datum Portland City Roadway Box **BOREHOLE** Locked Cover SOIL/ROCK Type of protective cover/lock CONDITIONS **BACKFILL** Height of top of guard pipe 3.0 above ground surface BENTONITE Height of top of riser pipe 2.8 ft 3.0 above ground surface **FILL** Type of protective casing: Steel Guard Pipe Length 5.0 ft **Inside Diameter** 3.0 in **FILTER** Depth of bottom of guard pipe/roadway box ft SAND Type of Seals Top of Seal (ft) Thickness (ft) Concrete Bentonite Seal 0.0 3.0 10.5 HARBOR L1 BOTTOM DEPOSIT Schedule 40 PVC 13.0 Type of riser pipe: Inside diameter of riser pipe 15.0 -Type of backfill around riser Filter Sand/Bentonite GLACIOMARINE DEPOSITS Diameter of borehole 3.0 in DRILL Depth to top of well screen 5.0 ft **CUTTINGS** Mach. Slotted Sch. 40 PVC Type of screen 0.010 Screen gauge or size of openings L2 Diameter of screen 2.0 Type of backfill around screen Filter Sand 53.0 **GLACIAL** TILL Depth of bottom of well screen 15.0 ft 63.8 L3 **Bottom of Silt trap** BEDROCK ft 65.5 Depth of bottom of borehole ft 65.5 (Bottom of Exploration) (Not to Scale) (Numbers refer to depth from ground surface in feet) 7.8 ft + 10 ft + ft = 17.8 ft Riser Pay Length (L1) Length of screen (L2) Length of silt trap (L3) Pay length COMMENTS:

Results of Groundwater Monitoring Observation Well HA08-5(OW)

MaineHealth/UnitedWay Development Somerset and Chestnut Streets Portland, Maine Haley & Aldrich File No. 35611-000

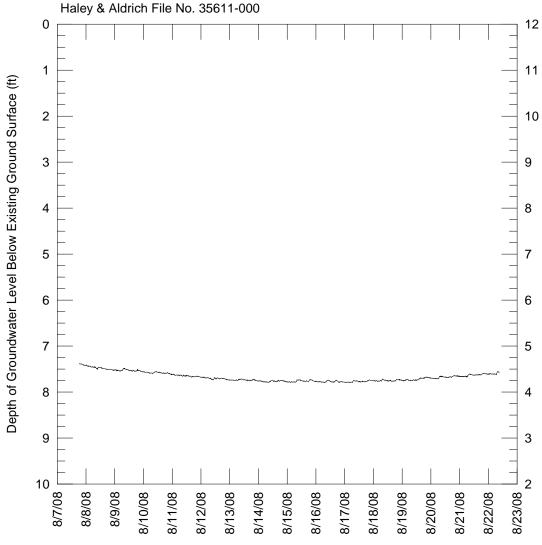


Approx. Elevation (ft, Portland City Datum)

OBSERVATION WELL Well No. HALEY&
ALDRICH HA08-7(OW) Boring No. INSTALLATION REPORT HA08-7(OW) 35611-000 PROJECT Maine Health/United Way Development H&A FILE NO. W. Chadbourne Portland, Maine PROJECT MGR. LOCATION O. Lawlor FIELD REP. Maine Medical Center CLIENT 7/31/2008 Maine Test Borings, Inc. DATE INSTALLED CONTRACTOR WATER LEVEL DRILLER M. Porter 12.0 +/-**Guard Pipe** Location See Plan Ground El. Roadway Box El. Datum Portland City Locked Cover SOIL/ROCK **BOREHOLE** Type of protective cover/lock **CONDITIONS BACKFILL** Height of top of guard pipe box 3.0 ft above ground surface BENTONITE FILL 3.0 ft Height of top of riser pipe 2.8 above ground surface 12.5 Type of protective casing: Steel Guard Pipe 5.0 ft **FILTER** Length 3.0 in **Inside Diameter GLACIOMARINE** SAND **DEPOSIT** Depth of bottom of guard pipe/roadway box 2.0 ft Type of Seals Top of Seal (ft) Thickness (ft) 38.0 -Concrete 3.0 0.0 Bentonite Seal LI Schedule 40 PVC Type of riser pipe: GLACIAL Inside diameter of riser pipe TILL DRILL Type of backfill around riser Filter Sand/Bentonite **CUTTINGS** Diameter of borehole 3.0 in Depth to top of well screen 5.0 Mach. Slotted Sch. 40 PVC Type of screen 60.1 -Screen gauge or size of openings 0.010 Diameter of screen in Type of backfill around screen Filter Sand BEDROCK Depth of bottom of well screen 15.0 L3 15.0 **Bottom of Silt trap** ft Depth of bottom of borehole 72.0 ft 72.0 (Bottom of Exploration) (Not to Scale) (Numbers refer to depth from ground surface in feet) 17.8 7.8 10 ft + ft =ft Pay length Riser Pay Length (L1) Length of screen (L2) Length of silt trap (L3) COMMENTS:

Results of Groundwater Monitoring Observation Well HA08-7(OW)

MaineHealth/UnitedWay Development Somerset and Chestnut Streets Portland, Maine



Approx. Elevation (ft, Portland City Datum)

Well No. HALEY&

ALDRICH **OBSERVATION WELL** HA08-12(OW) Boring No. INSTALLATION REPORT HA08-12(OW) 35611-000 PROJECT Maine Health/United Way Development H&A FILE NO. LOCATION Portland, Maine PROJECT MGR. W. Chadbourne CLIENT Maine Medical Center FIELD REP. O. Lawlor CONTRACTOR 7/24/2008 Maine Test Borings, Inc. DATE INSTALLED DRILLER M. Porter WATER LEVEL 11.0 +/-See Plan **Guard Pipe** Ground El. Location El. Datum Portland City Roadway Box SOIL/ROCK **BOREHOLE** Type of protective cover/lock Locked Cover **CONDITIONS BACKFILL** Height of top of guard pipe 3.0 above ground surface BENTONITE 3.0 -Height of top of riser pipe 2.75 ft above ground surface Steel Guard Pipe Type of protective casing: Length 5.0 ft FILL Inside Diameter 3.0 in Depth of bottom of guard pipe/roadway box 2.0 ft Type of Seals Top of Seal (ft) Thickness (ft) Concrete Bentonite Seal 0.0 3.0 Ll 11.6 Schedule 40 PVC Type of riser pipe: FILTER Inside diameter of riser pipe SAND Type of backfill around riser Filter Sand/Bentonite HARBOR воттом **DEPOSIT** Diameter of borehole 3.0 Depth to top of well screen 4.0 Type of screen Mach. Slotted Sch. 40 PVC 14.0 Screen gauge or size of openings 0.010 Diameter of screen 2.0 Type of backfill around screen Filter Sand GLACIOMARINE DEPOSIT Depth of bottom of well screen 14.0 L3 **Bottom of Silt trap** 14.0 Depth of bottom of borehole 16.0 (Bottom of Exploration) (Numbers refer to depth from ground surface in feet) (Not to Scale) 16.75 6.75 10 0 ft + ft

COMMENTS:

Riser Pay Length (L1)

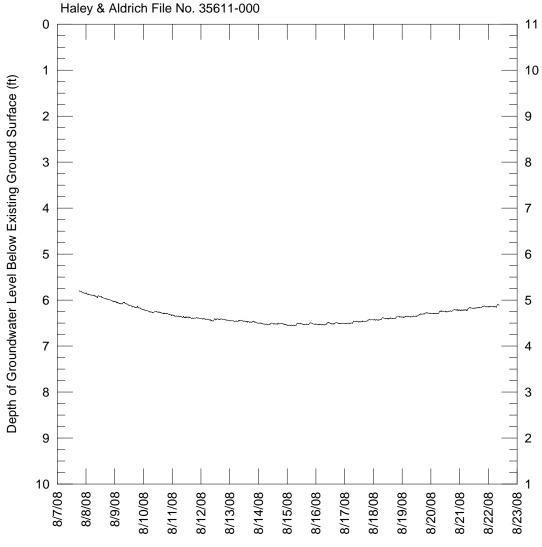
Length of screen (L2)

Length of silt trap (L3)

Pay length

Results of Groundwater Monitoring Observation Well HA08-12(OW)

MaineHealth/UnitedWay Development Somerset and Chestnut Streets Portland, Maine



Approx. Elevation (ft, Portland City Datum)

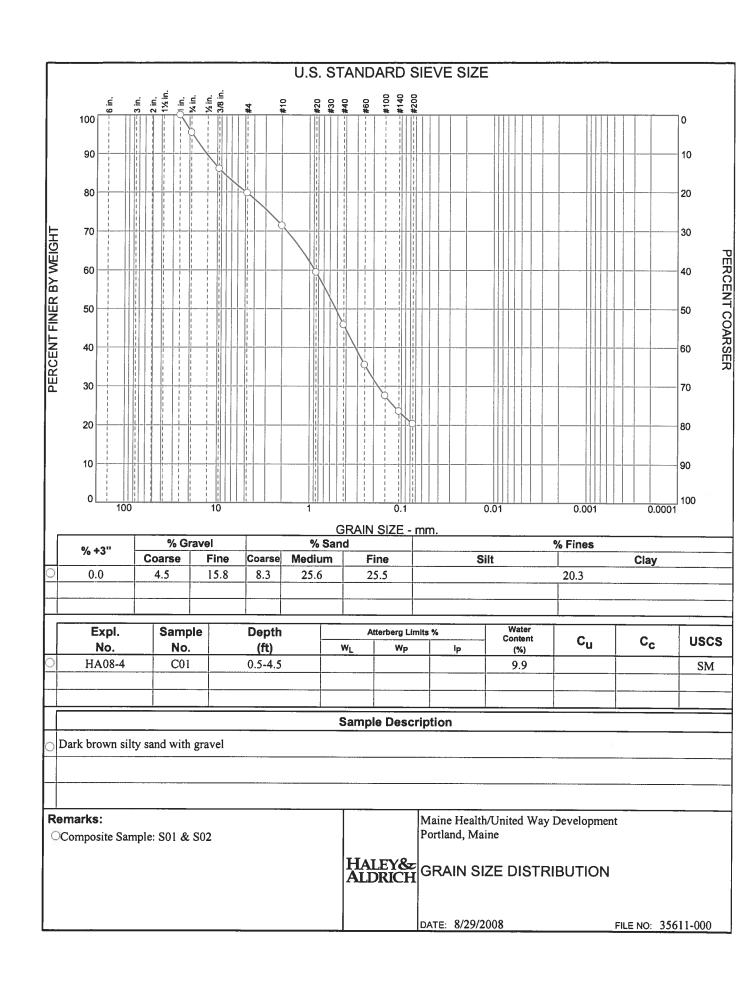
APPENDIX D

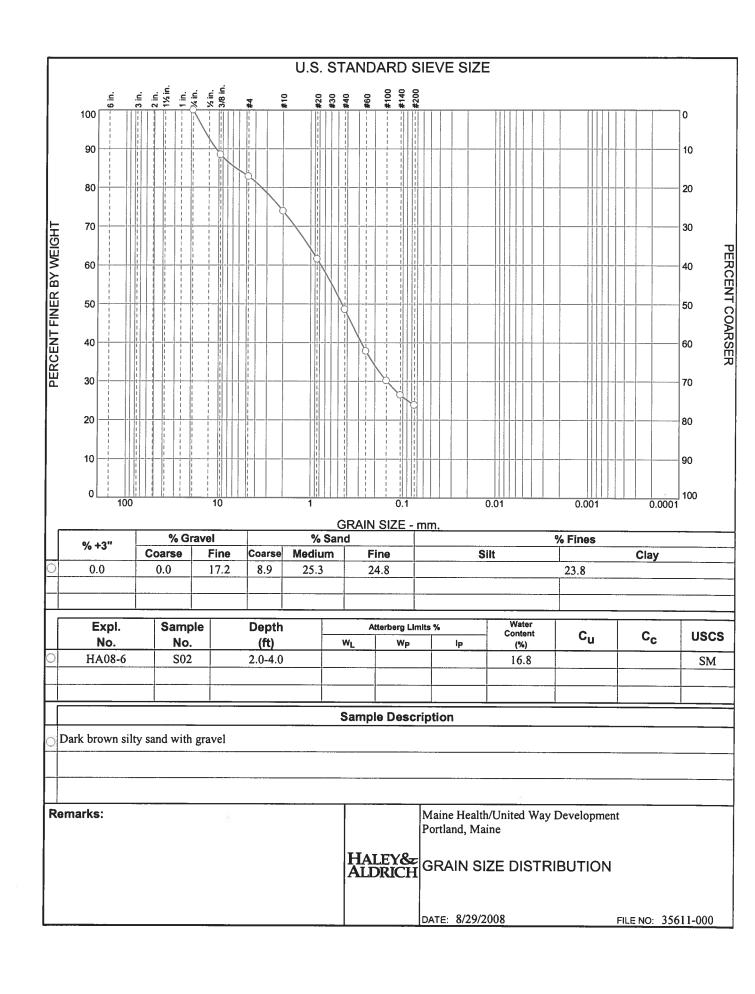
Laboratory Test Results

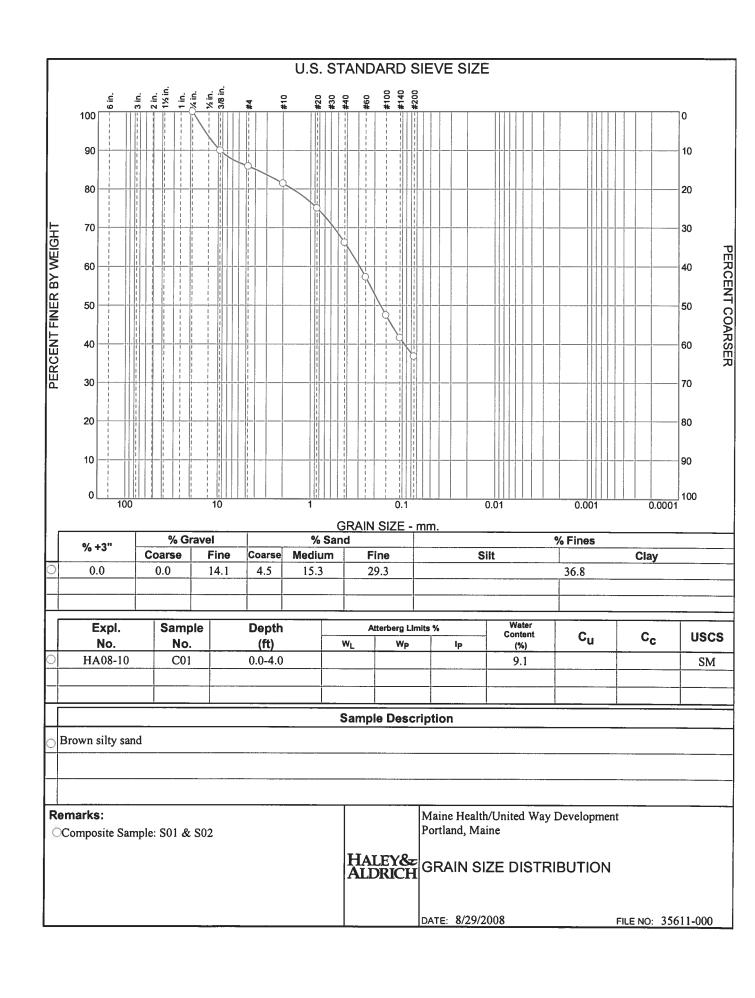


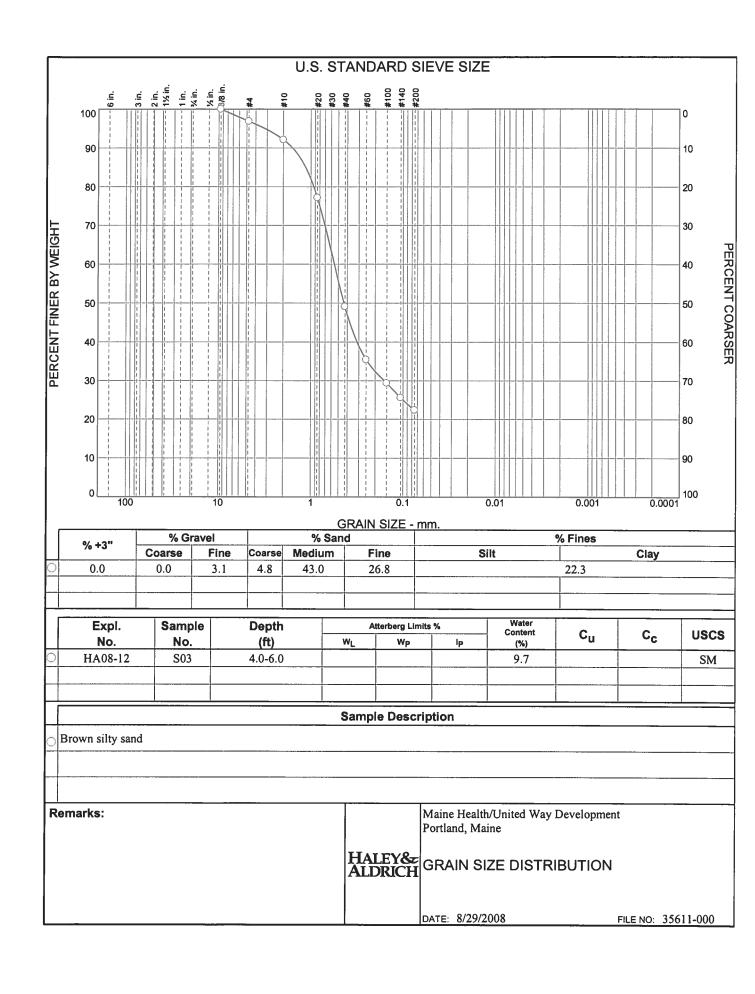
Grain Size Distribution Reports











Atterberg Limits and Natural Water Content Reports





Client: Haley & Aldrich, Inc.

Project: Maine Health / United Way Development

Location: Portland, ME

Boring ID: --- Sample Type: --- Test Date: 08/:

Depth: --- Sample Id: --

Project No: GTX-8427

--- Tested By: ap 08/15/08 Checked By: jdt

Moisture Content of Soil - ASTM D 2216-05

Boring ID	Sample ID	Depth	Description	Moisture Content,%
HA08-4	S-12	30-32 ft	Moist, olive gray clay	38.3
HA08-4	S-13	40-42 ft	Moist, olive gray clay	41.8
HA08-8	S-10	30-32 ft	Moist, olive gray clay	42.7
HA08-8	S-11	35-37 ft	Moist, olive gray clay	30.8

Notes: Temperature of Drying: 110° Celsius



Client: Haley & Aldrich, Inc.

Project: Maine Health / United Way Development

Location: Portland, ME

Boring ID: ---Sample ID:---

Sample Type: ---

Project No: Tested By:

GTX-8427

Test Date: Depth: ---

Sample Id:

09/03/08 Checked By: jdt

Moisture Content of Soil - ASTM D 2216-05

Boring ID	Sample ID	Depth	Description	Moisture Content,%
HA08-4	U-2	33-35 ft	Moist, dark greenish gray clay	31.4
HA08-10	U-1	25-27 ft	Moist, gray clay	37.9

Notes: Temperature of Drying: 110° Celsius

GeoTesting express

a subsidiary of Geocomp Corporation

Client: Haley & Aldrich, Inc.

Project: Maine Health / United Way Development

Location: Portland, ME

Sample Type: jar

Project No: Tested By:

GTX-8427

Boring ID: HA08-4 Sample ID:S-12

Test Date: 08/12/08 Test Id: 136560

Checked By: jdt

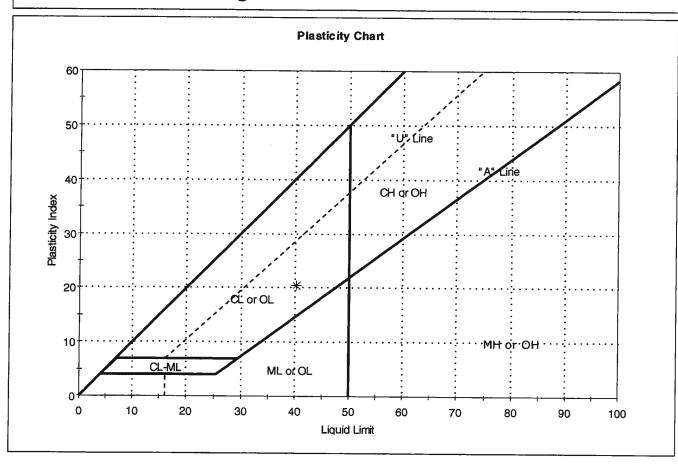
Depth: 30-32 ft Test Comment:

Sample Description:

Moist, olive gray clay

Sample Comment:

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
*	S-12	HA08-4	30-32 ft	38	40	20	20	1	4. MEN MATERIAL SECTION AS A SE

Sample Prepared using the WET method

Dry Strength: VERY HIGH

GeoTesting express

a subsidiary of Geocomp Corporation

Client: Haley & Aldrich, Inc.

Project: Maine Health / United Way Development

Location: Portland, ME

Boring ID: HA08-4 Sample Type: tube Sample ID:U-2 Test Date: 08/2

Depth: 33-35 ft Test Id: 136851

Test Comment:

Sample Description: Moist, dark greenish gray clay

Sample Comment: --

Atterberg Limits - ASTM D 4318-05

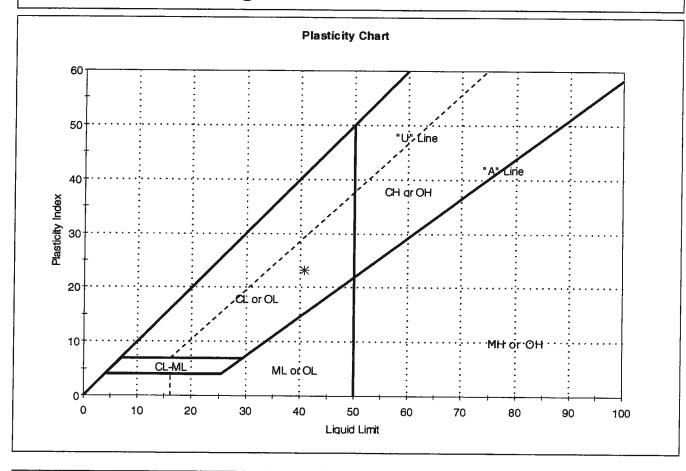
Project No:

Tested By:

08/26/08 Checked By: jdt

GTX-8427

ар



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
*	U-2	HA08-4	33-35 ft	31	41	17	24	1	5-8/ 3-1 0-0 0 0 0

Sample Prepared using the WET method

Dry Strength: VERY HIGH



Client: Haley & Aldrich, Inc.

Project: Maine Health / United Way Development

Location: Portland, ME

Boring ID: HA08-4 Sample Type: jar Tested By: ap Sample ID:S-13 Test Date: 08/13/08 Checked By: jdt

Project No:

GTX-8427

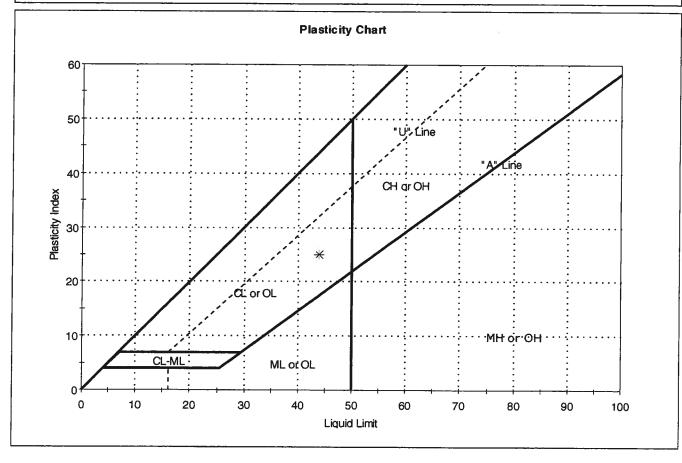
Depth: 40-42 ft Test Id: 136561

Test Comment:

Sample Description: Molst, olive gray clay

Sample Comment: --

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
*	S-13	HA08-4	40-42 ft	42	44	19	25	1	

Sample Prepared using the WET method

Dry Strength: VERY HIGH



Client: Haley & Aldrich, Inc.

Project: Maine Health / United Way Development

Location: Portland, ME

Sample Type: jar

Tested By: ap

Project No:

GTX-8427

Boring ID: HA08-8 Sample ID:S-10

Test Date: Test Id: 08/12/08 Check 136562

Checked By: jdt

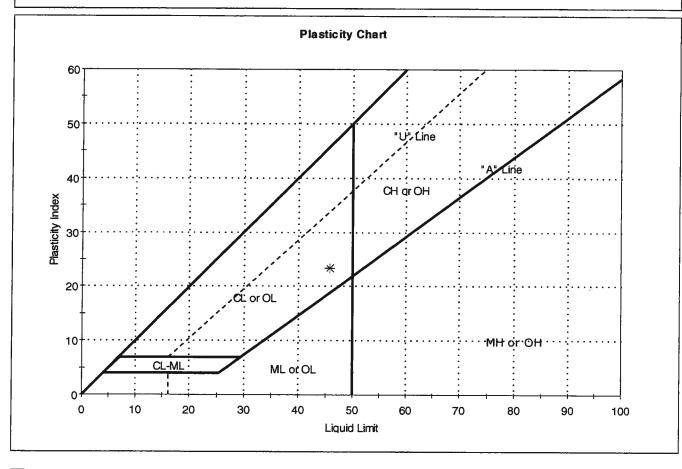
Depth: 30-32 ft Test Comment:

Sample Description:

Moist, olive gray day

Sample Comment: --

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
*	S-10	HA08-8	30-32 ft	43	46	23	23	1	

Sample Prepared using the WET method

Dry Strength: VERY HIGH

GeoTesting express

a subsidiary of Geocomp Corporation

Client: Haley & Aldrich, Inc.

Maine Health / United Way Development Project:

Location: Portland, ME

Boring ID: HA08-8

Sample Type: jar Test Date:

Project No: Tested By: ар

GTX-8427

Sample ID:S-11 Depth: 35-37 ft

Test Id:

136563

08/13/08 Checked By: jdt

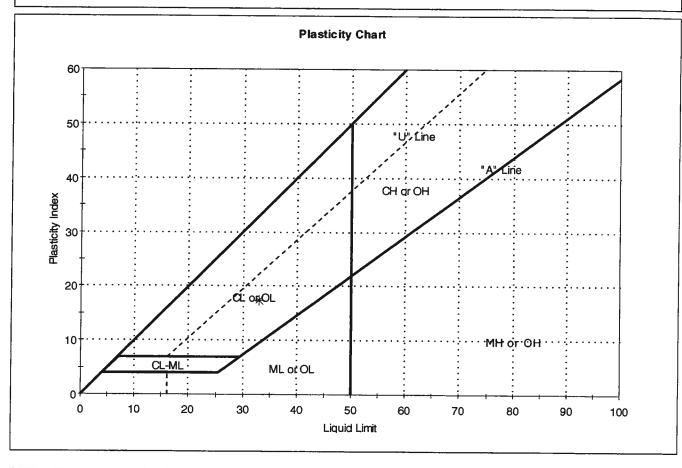
Test Comment:

Sample Description:

Moist, olive gray clay

Sample Comment:

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
*	S-11	HA08-8	35-37 ft	31	33	16	17	1	

Sample Prepared using the WET method

Dry Strength: VERY HIGH



Client: Haley & Aldrich, Inc.

Project: Maine Health / United Way Development

Location: Portland, ME

Sample Type: tube 08/26/08

GTX-8427

Boring ID: HA08-10 Sample ID:U-1

Test Date: Test Id:

Project No: Tested By: Checked By: jdt

ар

Depth:

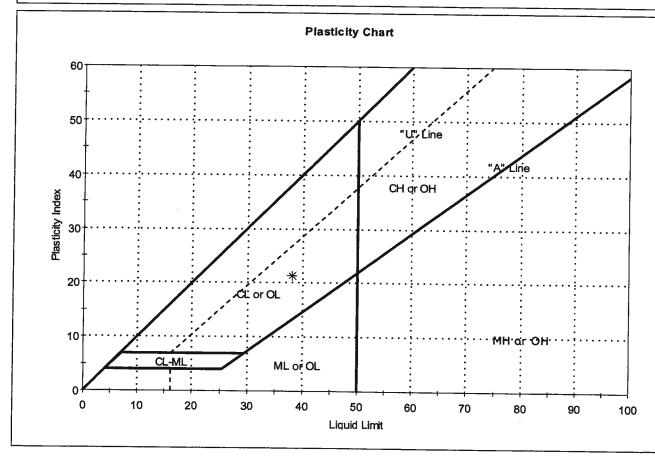
25-27 ft

Test Comment: Sample Description: Moist, gray clay

Sample Comment:

136852

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
*	U-1	HA08-10	25-27 ft	38	38	17	21	1	

Sample Prepared using the WET method

Dry Strength: VERY HIGH

Dilentancy: SLOW Toughness: LOW

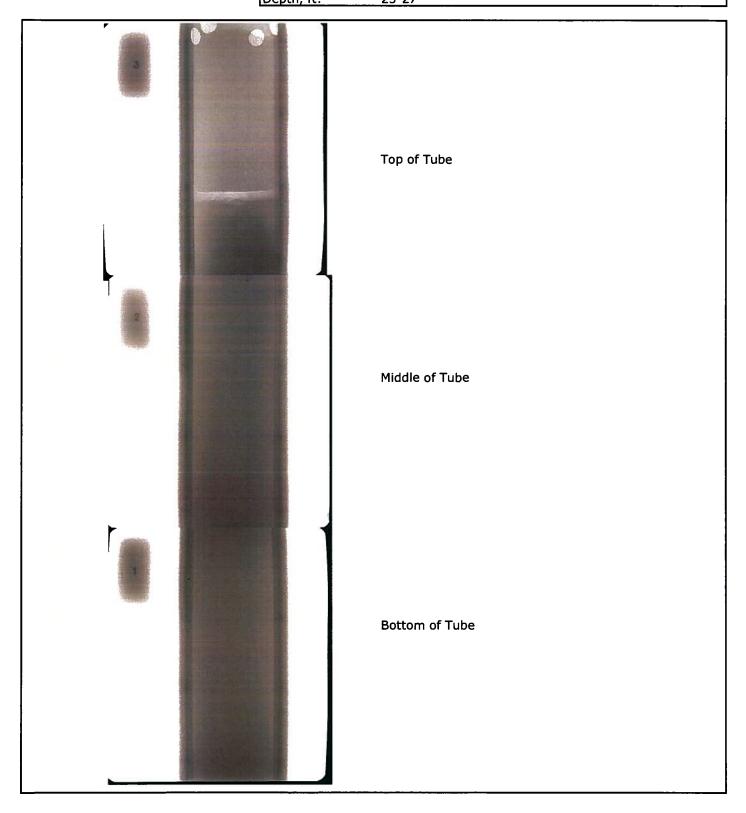
printed 8/27/2008 8:34:43 AM

Radiography Test Reports



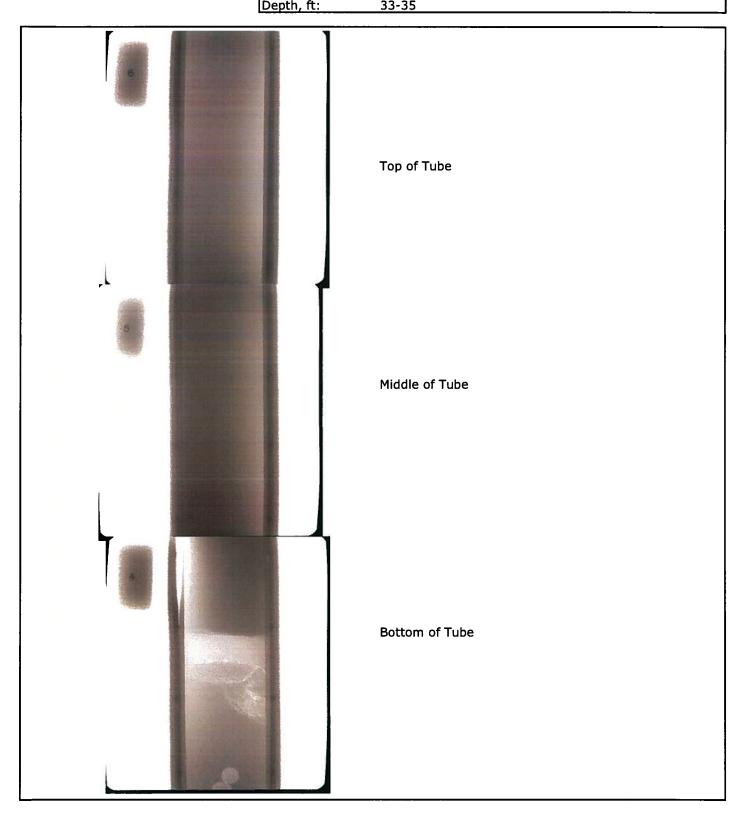


Client:	Haley & Aldrich, Inc.	
Project Name:	Maine Health/United Way Development	
Project Location:	Portland, ME	
GTX #:	8427	
Test Date:	08/11/08	
Tested By:	edd/md	
Checked By:	jdt	
Boring ID:	HA08-4	
Sample ID:	U-1	
Depth. ft:	25-27	



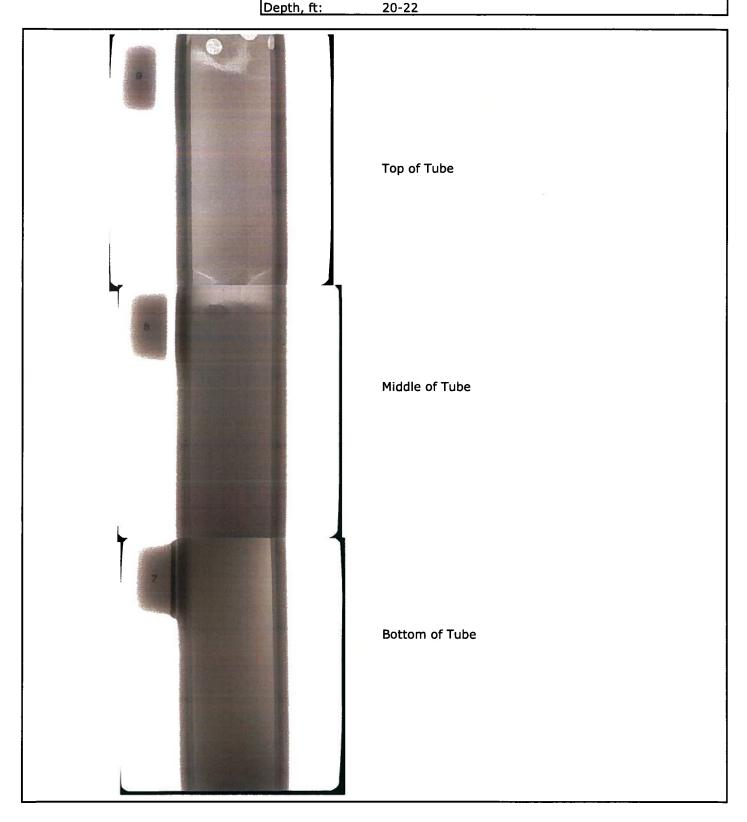


Client:	Haley & Aldrich, Inc.
Project Name:	Maine Health/United Way Development
Project Location:	Portland, ME
GTX #:	8427
Test Date:	08/11/08
Tested By:	edd/md
Checked By:	jdt
Boring ID:	HA08-4
Sample ID:	U-2
Denth ft	33-35



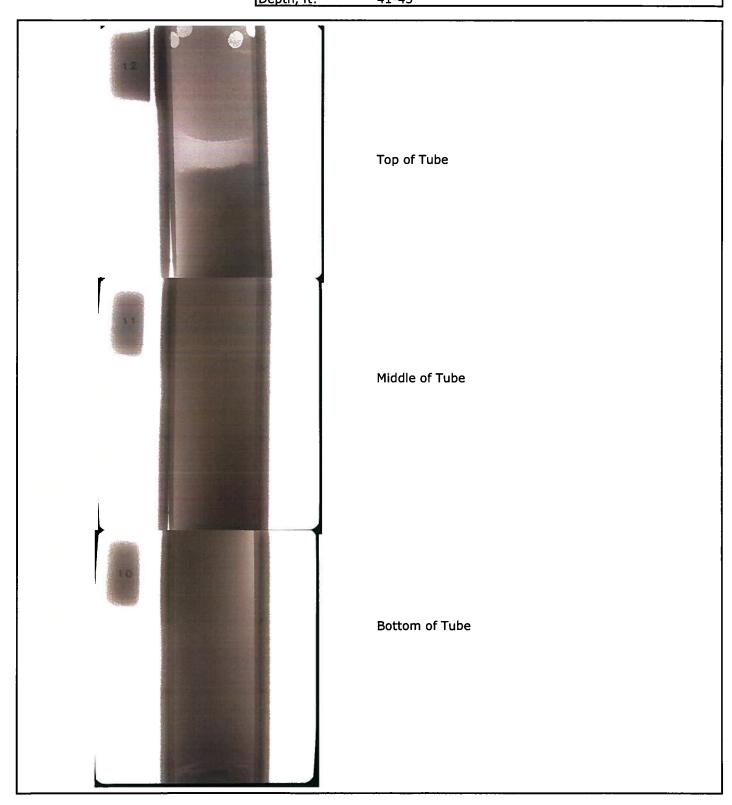


Client:	Haley & Aldrich, Inc.	
Project Name:	Maine Health/United Way Development	
Project Location:	Portland, ME	
GTX #:	8427	
Test Date:	08/11/08	
Tested By:	edd/md	
Checked By:	jdt	
Boring ID:	HA08-8	
Sample ID:	U-1	
D	20.00	



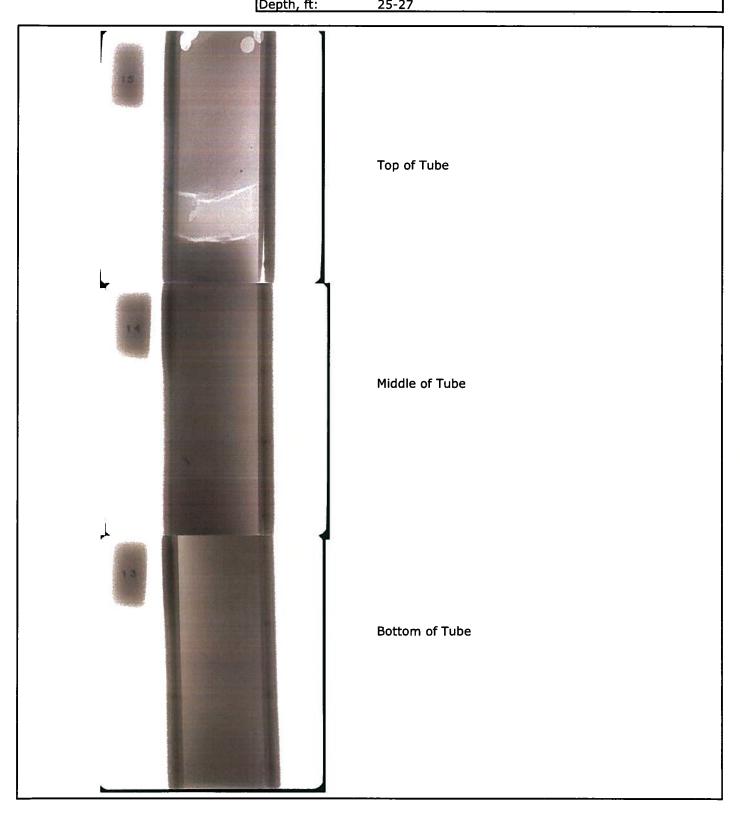


Client:	Haley & Aldrich, Inc.
Project Name:	Maine Health/United Way Development
Project Location:	Portland, ME
GTX #:	8427
Test Date:	08/11/08
Tested By:	edd/md
Checked By:	jdt
Boring ID:	HA08-8
Sample ID:	U-2
Denth ft	41-43





Client:	Haley & Aldrich, Inc.	
Project Name:	Maine Health/United Way Development	10
Project Location:	Portland, ME	
GTX #:	8427	
Test Date:	08/11/08	
Tested By:	edd/md	
Checked By:	jdt	
Boring ID:	HA08-10	
Sample ID:	U-1	
Denth ft	25-27	

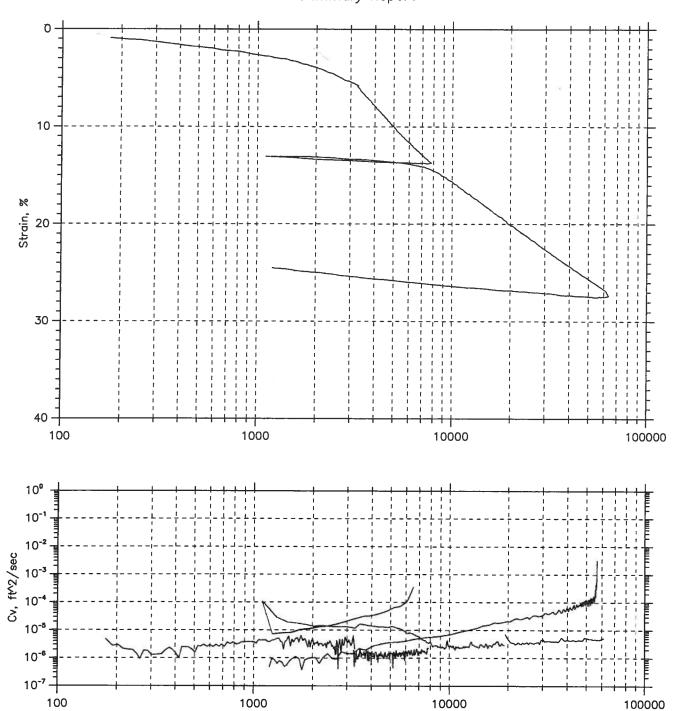


Consolidation Test Reports



Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186 Summary Report



Project: Maine Health	Location: Portland, ME	Project No.: GTX-8427
Boring No.: HA-08-4	Tested By: md	Checked By: jdt
Sample No.: U-2	Test Date: 08/27/08	Depth: 33-35
Test No.: CRC-1A	Sample Type: tube	Elevation:
Description: Moist, dark greenis	sh gray clay	
Remarks: System S		

Effective Stress, psf

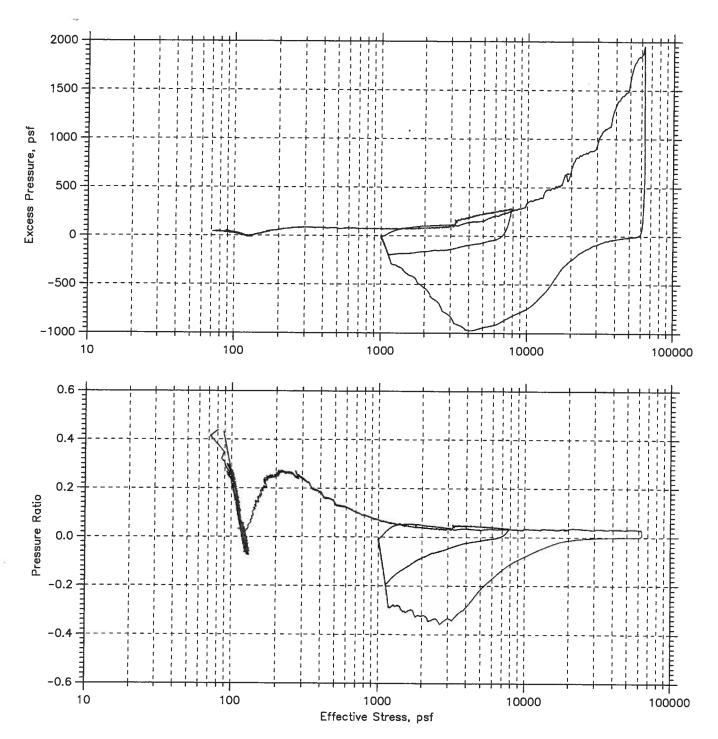
100000

1000

100

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186 Pressure Curves



Remarks: System S			
Description: Moist, dark greeni	sh gray clay		
Test No.: CRC-1A	Sample Type: tube	Elevation:	
Sample No.: U-2	Test Date: 08/27/08	Depth: 33-35	
Boring No.: HA-08-4	Tested By: md	Checked By: jdt	
Project: Maine Health	Location: Portland, ME	Project No.: GTX-8427	

CRC TEST DATA

Project: Maine Health Boring No.: HA-08-4 Sample No.: U-2

Test No.: CRC-1A

Location: Portland, ME

Tested By: md Test Date: 08/27/08 Sample Type: tube

Soil Description: Moist, dark greenish gray clay

Remarks: System S

Estimated Specific Gravity: 2.80 Initial Void Ratio: 0.98 Final Void Ratio: 0.50

Liquid Limit: 41 Plastic Limit: 17 Plasticity Index: 24 Project No.: GTX-8427

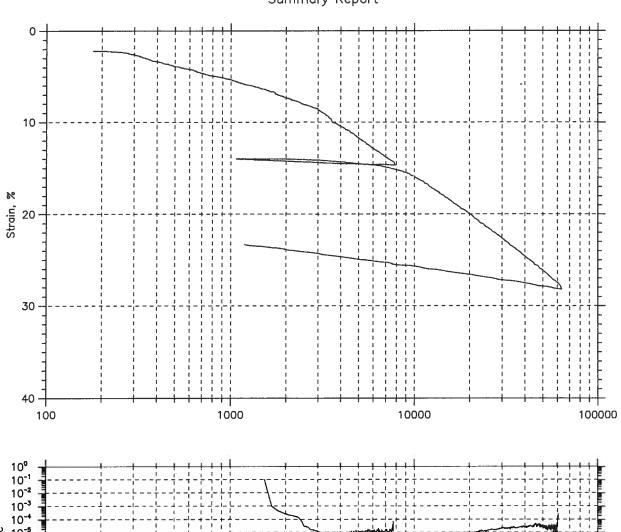
Checked By: jdt Depth: 33-35 Elevation: ---

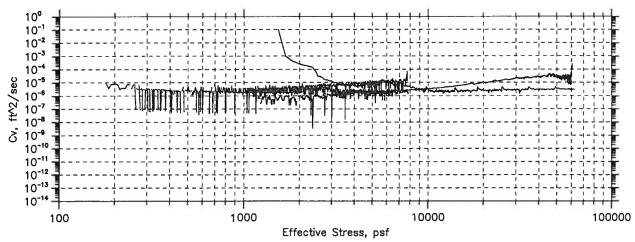
Initial Height: 1.00 in Specimen Diameter: 2.50 in

	Before Consolidation		After Consolidation	
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	3217	RING		vrayum
Wt. Container + Wet Soil, gm	211.83	353.9	336.26	140.32
Wt. Container + Dry Soil, gm	163.17	318.01	318.01	122.08
Wt. Container, gm	8.29	204.15	204.15	8.27
Wt. Dry Soil, gm	154.88	113.86	113.86	113.81
Water Content, %	31.42	31.52	16.03	16.03
Void Ratio		0.98	0.50	
Degree of Saturation, %		90.23	90.62	
Dry Unit Weight, pcf		88.366	116.9	

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186 Summary Report

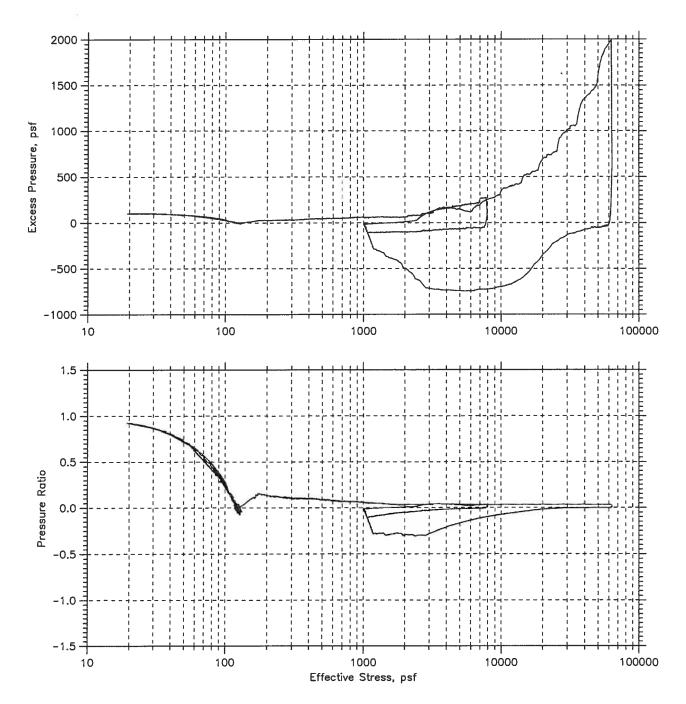




Project: Maine Health	Location: Portland, ME	Project No.: GTX-8427
Boring No.: HA-08-10	Tested By: md	Checked By: jdt
Sample No.: U-1	Test Date: 08/25/08	Depth: 25-27
Test No.: CRC-2	Sample Type: tube	Elevation:
Description: Moist, gray clay		
Remarks: System 0		· · · · · · · · · · · · · · · · · · ·

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186 Pressure Curves



Project: Maine Health	Location: Portland, ME	Project No.: GTX-8427
Boring No.: HA-08-10	Tested By: md	Checked By: jdt
Sample No.: U-1	Test Date: 08/25/08	Depth: 25-27
Test No.: CRC-2	Sample Type: tube	Elevation:
Description: Moist, gray clay		
Remarks: System 0		

CRC TEST DATA

Project: Maine Health Boring No.: HA-08-10 Sample No.: U-1 Test No.: CRC-2

Soil Description: Moist, gray clay Remarks: System O

Estimated Specific Gravity: 2.90 Initial Void Ratio: 1.13 Final Void Ratio: 0.64

Location: Portland, ME

Tested By: md Test Date: 08/25/08 Sample Type: tube

Checked By: jdt Depth: 25-27 Elevation: ---

Project No.: GTX-8427

Liquid Limit: 38 Plastic Limit: 17 Plasticity Index: 21

Initial Height: 1.00 in Specimen Diameter: 2.50 in

	Before Consolidation		After Consol	idation
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	organic	RING		3171
Wt. Container + Wet Soil, qm	118.23	368.58	349.88	26.19
Wt. Container + Dry Soil, gm	88.77	325.88	325.88	22.93
Wt. Container, qm	8.07	216.55	216.55	8.08
Wt. Dry Soil, gm	80.7	109.33	109.33	14.85
Water Content, %	36.51	39.06	21.95	21.95
Void Ratio		1.13	0.64	
Degree of Saturation, %		99.91	99.29	
Dry Unit Weight, pcf		84.848	110.31	

APPENDIX E

Soil Screening Headspace Reports





Page 1 of 5

PROJECT	Ma	aineHealth /	/ UnitedWay Devel	opment				H&A FILE NO.	35€	511-000)		
LOCATION	Po	rtland, Maii	ne					PROJECT MGR.	W.	Chadbo	ourne		
CLIENT	Ma	aine Medica	al Center	·				FIELD REP	0.3	Lawlor			
INSTRUME	NT Th	nermo 580B						DATE SAMPLED	7/2	3/2008	- 7/24/	/2008	
DATE CALIBRATED (1) 7/28/2008 LAMP (eV) 10					10.6	DATE SCREENED	7/28/2008						
AMBIENT T	'EMPERA	ATURE	RT	CALIBRA	ATED BY		DAD	SCREENING LOC	C. H&A Portland Lab				
						Back-					Cont	ainers	
Exploration	Sample Number		Sample Descr	ription	Sample Reading (ppm) ⁽²⁾	Ground Reading (ppm) ⁽²⁾		Remarks	GC ⁽³⁾	Drill Jar			

					васк-			Containers		ners	
Exploration	Sample Number	Depth (ft)	Sample Description	Sample Reading (ppm) ⁽²⁾	Ground Reading (ppm) ⁽²⁾	Remarks	GC ⁽³⁾	Drill Jar			
HA08-3	S1	1.0-3.0	well graded gravel with sand	0.9	0.0			х			
HA08-3	. S2	3.0-5.0	silty sand with ash & cinders	1.2	0.0			х			
HA08-3	S3	5.0-7.0	cinders, ash, brick, and coal	2.8	0.0			х			
HA08-3	S4	7.0-9.0	poorly-graded gravel, cinders	1.5	0.0			х			
HA08-3	S5	10.0-12.0	silty sand, cinders and ash	14.9	0.0		j	х			
HA08-3	S6	12.0-14.0	silt with sand, shells, organics	0.0	0.0			х			
HA08-3	S7	14.0-16.0	silt with sand, shells, H2S odor	0.0	0.0			х			
HA08-6	S1	0.0-2.0	silty sand	0.0	0.0			х			
HA08-6	S2	2.0-4.0	silty sand, brick, cinders, wood	0.0	0.0	Tinfoil cover torn		х			
HA08-6	S3	4.0-6.0	silty to well graded sand	0.0	0.0			х			
HA08-6	S4	6.0-8.0	poorly graded sand	0.0	0.0			х			
HA08-6	S5	8.0-10.0	silty sand with gravel	0.0	0.0			х			
HA08-6	S6	10.0-12.0	silty sand w/ gravel, brick, shell	0.0	0.0			х			
HA08-6	S7	12.0-14.0	sandy silt, shell fragments	0.0	0.0			х			
HA08-9	S1	0.0-2.0	silty gravel with sand, org odor	0.0	0.0			х			
HA08-9	S2	2.0-4.0	cinders and ash to silty sand	0.0	0.0			х			
HA08-9_	S3	4.0-6.0	silty sand	0.0	0.0			х			
HA08-9	S4	6.0-8.0	silty sand with gravel	0.0	0.0			х			
HA08-9_	S5	8.0-10.0	silty sand with gravel	0.0	0.0			х			
HA08-9	S6	10.0-12.0	silty sand, wood and glass	0.0	0.0			х			
HA08-9	S7	12.0-14.0	silt, wood fragments, org odor	0.0	0.0	Poor sample recovery		х			
HA08-9	S8	14.0-16.0	lean clay	0.0	0.0			х			
HA08-12	S1	0.0-2.0	silty sand with gravel, cinders	0.0	0.0			х			
HA08-12	S2	2.0-4.0	silty sand with gravel, cinders	0.0	0.0			х			
HA08-12	S3	4.0-6.0	silty sand - poorly graded sand	0.0	0.0		1	x		T	

^{1.} Instrument calibrated to the manufacturer standard.

^{3.} Sample assigned for gas chromatograph screening.

Sampled and relinquished by:	Received by:	Relinquished by:	Received by:
Sign: NA	Sign: NA	Sign: NA	Sign: NA
Print: NA	Print: NA	Print: NA	Print: NA
Firm: NA	Firm: NA	Firm: NA	Firm: NA
Date: NA Time: NA	Date: NA Time: NA	Date: NA Time: NA	Date: NA Time: NA

^{2.} ppm represents concentration of detectable volatile gaseous compounds in parts per million of air.



Page 2 of 5

PROJECT	Ma	MaineHealth / UnitedWay Development								H&A FILE NO. 35611-000							
LOCATION	Por	rtland, Mai	ine						_	PRO	JECT MGI	R.	W.	Chadbo	ourne		<u> </u>
CLIENT		aine Medic	al Cente	er							LD REP			Lawlor			
INSTRUME		ermo 580B	3								E SAMPLE						
DATE CALI	BRATED	(1)	7/2	8/2008	I	LAMP (e	. V)		10.6	DAT	E SCREEN	ED	ZD <u>7/28/2008</u>				
AMBIENT T	'EMPERA	TURE		RT	_ (CALIBR	ATED BY		DAD	SCR	EENING L	OC.	<u>H&</u>	A Port	land La	ıb	
								Back-				Т			Conta	ainers	
Exploration	Sample Number	Depth (ft)	S	ample D	escript	tion	Sample Reading	Ground Reading	Ì	Rema	rks	c	GC ⁽³⁾	Drill			
			,				(ppm) ⁽²⁾	(ppm) ⁽²⁾	ň.					Jar			
HA08-12	S4	6.0-8.0	poorly (graded sar	nd		0.0	0.0				4		х			
HA08-12	S5	8.0-10.0	well gra	ided sand	ı		0.0	0.0						Х			
HA08-12	S6	10.0-12.0	well gra	aded sand	Į		0.0	0.0				\perp		х			
HA08-12	S7	12.0-14.0	no reco	very, shel	lls in wa	ish	0.0	0.0	[L	$^{-}$ \perp	х			
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									 			\top		\neg			
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Instrument ppm repres Sample ass	ents conce	ntration of	detecta	ible volat	tile gase	eous com	pounds in	parts per r	nillion of	f air.							
Sampled and relinquished by: Received by:				\Box	Reli	nquished b	y:			Rece	ived by	y:					
Sign: NA					Sign: NA												
Print: NA	t: NA Print: NA Print: NA Print: NA																
Firm: NA	•	•		Firm: N	iA			Firm:	NA NA			Firm	ı: NA				

Date: NA

Date: NA

Time: NA

Time: NA

Time: NA

Time: NA

Date: NA

Date: NA



Page 3 of 5

PROJECT MaineHealth / UnitedWay Development									H&A FILE NO).	356	11-000	1		
LOCATION	Por	tland, Mai	ne						PROJECT MG	R.	W.	Chadbo	ourne		
CLIENT	Ma	ine Medica	al Cente	er					FIELD REP		0.1	Lawlor			
INSTRUME	NT The	ermo 580B	,						DATE SAMPL	ED	7/2	8/2008	- 7/29/2	2008	
DATE CALI	BRATED	(1)	7/3	0/2008	LAMP (e	v)		10.6	DATE SCREENED 7/30/2008						
AMBIENT T				RT	CALIBRA	ATED BY		DAD	SCREENING I	LOC.	H&	H&A Portland Lab			
							Back-		I		Containers				
Exploration	Sample Number	Depth (ft)	s	Sample Descrip	otion	Sample Reading (ppm) ⁽²⁾	Ground Reading (ppm) ⁽²⁾		Remarks		GC ⁽³⁾	Drill Jar	Conta	iners	
HA08-11	S1	0.0-2.0	sand w	/ brick, cinders &	k plastic	0.0	0.0					х			
HA08-11	S2	2.0-4.0	sand w	/ brick, cinders &	k plastic	5.0	0.0					х			
HA08-11	S3	4.0-6.0	poorly	graded sand		12.3	0.0					х			
HA08-11	S4	6.0-8.0	well gra	aded sand		0.0	0.0					х			
HA08-11	S5	8.0-10.0	well gra	aded sand		0.0	0.0					х			
HA08-11	S6	10.0-12.0	well gra	aded sand		0.0	0.0					х			
HA08-13	S1	0.0-2.0	poorly	graded sand, cin-	ders	0.0	0.0					х			
HA08-13	S2	2.0-4.0	poorly	graded sand,cind	ier&ash	0.0	0.0					х			
HA08-13	S3	4.0-6.0	poorly	graded sand,cind	ier&ash	0.0	0.0					х			
HA08-13	S4	6.0-8.0	well gra	aded gravel, woo	od&glass	0.0	0.0			_		х			
HA08-13	S 5	8.0-10.0	gravel,	wood and glass		0.0	0.0					х			
HA08-13	S6	10.0-12.0	sandy s	silt, wood, glass	& shells	0.0	0.0					х			
										_					
										_					
				····						ļ					
									ï						
 Instrument ppm repres Sample ass 	ents conce	ntration of	detecta	able volatile gas	seous com	pounds in	parts per n	nillion of air	т.						
Sampled and relinquished by: Received by:				7:		Relinqu	iished by:			Rece	ived by	/:			
Sign: NA Sign: NA				Sign:	NA		Sig	n: NA							
Print: NA		-		Print: NA			Print:	NA		Pri	nt: NA				
Firm: NA				Firm: NA			Firm:	NA Firm: NA			Firm: NA				

Date: NA

Time: NA

Date: NA

Time: NA

Time: NA

Time: NA

Date: NA

Date: NA



Page 4 of 5

PROJECT	ROJECT MaineHealth / UnitedWay Development							H&A FILE NO).	356	11-000	,		
LOCATION		rtland, Mai						PROJECT MG	R.	W.	Chadbo	ourne		
CLIENT	Ma	ine Medic	al Center					FIELD REP		0.1	Lawlor			
INSTRUME		ermo 580B	}					DATE SAMPL	ED	7/3	0/2008	- 8/4/20	800	
DATE CALI	BRATED	(1)	7/30/2008 LA	AMP (eV)	_	!	10.6	DATE SCREEN	NED	8/6/	/2008			
AMBIENT T	'EMPERA	TURE	RT CA	ALIBRATEI	D BY		DAD	SCREENING I	LOC.	<u>H&</u>	A Portl	land La	b	
Exploration	Sample Number	Depth (ft)	Sample Description	on Rea	mple G	Back- Fround eading		Remarks	C	GC ⁽³⁾	Drill	Conta	iners	
						pm) ⁽²⁾				\dashv	Jar	\longrightarrow		
HA08-4	S1	0.5-2.5	sand with silt, cinder and a	ash 69	9.0	0.0			-	\dashv	х	\longrightarrow		
HA08-4	S2	2.5-4.5	sand with silt, cinder and a	ash 55	5.0	0.0			_		х	\longrightarrow		
HA08-4	S3	5.0-7.0	silty sand, cinder and ash	0	0.0	0.0					х			
HA08-4	S4	7.0-9.0	poorly graded sand with w	vood 40	0.0	0.0					х			
HA08-4	S5	9.0-11.0	sand w/ silt, wood, glass, s	shells 0	0.0	0.0					х			
HA08-5	SI	0.0-2.0	poorly graded sand, cinder	r, ash 12	23.0	0.0					х			
HA08-5	S2	2.0-4.0	poorly graded sand, cinder	r, ash 11	14.0	0.0					х			
HA08-5_	S3	4.0-6.0	poorly graded sand, cinder	r, ash 6	5.0	0.0					х			
HA08-5	S4	6.0-8.0	poorly graded sand, cinder	r, ash 4	1.2	0.0					х			
HA08-5	S5	8.0-10.0	silty sand, shell and brick	2	2.5	0.0					х			
HA08-7	SI	0.0-2.0	sand with silt, ash, brick, v	wood 9	9.4	0.0					х			
HA08-7	S2	2.0-4.0	sand with silt, ash, brick	4	1.2	0.0					х			
HA08-7	S3	4.0-6.0	silty sand, cinder and ash	0).8	0.0					х			
HA08-7	S4	6.0-8.0	silty sand, cinder and ash	0.).8	0.0					х			
HA08-7	S5	8.0-10.0	well graded sand	0.	0.0	0.0					х			
HA08-7	S6	10.0-12.0	silty sand, trace clay	0.).0	0.0					х			
							<u> </u>							
_	Tel													
					\perp									
2. ppm repres	ents conce	ntration of	nufacturer standard. detectable volatile gased tograph screening.	ous compoun	ıds in par	ts per m	nillion of air.							
Sampled and relinquished by: Received by: Relinquished by: Received by:														
Sign: NA Sign: NA			Sign:	NA		Sign	: NA							
Print: NA Print: NA					Print:	NA	_	Print	t: NA					

Firm: NA

Date: NA

Time: NA

Firm: NA

Date: NA

Time: NA

Time: NA

Time: NA

Firm: NA

Date: NA

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Date: NA



Page 5 of 5

PROJECT	<u>M</u>	aineHealth	/ United Way Development			H&A FILE NU	. <u>33</u>	611-00	J		
LOCATION	Po	ortland, Ma	ine			PROJECT MG	R. W	. Chadb	ourne		
CLIENT	M	aine Medic	al Center			FIELD REP	O.	Lawlor			
INSTRUME		nermo 580I	3			DATE SAMPL	ED 8/0	5/2008 -	8/13/20	800	
DATE CALI	BRATE) ⁽¹⁾	LAMP (eV)		10.6 DATE SCREET	DATE SCREENED 8/13/2008				
AMBIENT 1	EMPER	ATURE	RT CALIBR	RATED BY	1	OAD SCREENING I	. ос . <u>н</u> а	&A Por	land La	b	
					Back-	-			Conta	iners	
Exploration	Sample Number		Sample Description	Sample Reading (ppm) ⁽²⁾	Ground Reading (ppm) ⁽²⁾	Remarks	GC ⁽³⁾	Drill Jar			
HA08-8	SI	0.0-2.0	poorly graded sand with gravel	0.0	0.0			х			
HA08-8	S2	2.0-4.0	silty sand with gravel	0.0	0.0			х			
HA08-8	S3	5.0-7.0	silty sand with gravel	5.9	0.0			х			
HA08-8	S4	7.0-9.0	silty sand with gravel	14.5	0.0	<u> </u>		х			
HA08-1	S1	1.0-3.0	well graded gravel, concrete	0.0	0.0			х			
HA08-1	S2	3.0-5.0	silty sand, concrete, ash	0.0	0.0			х			-
HA08-1	S3	5.0-7.0	silty sand	0.0	0.0	Tinfoil cover torn		х			
<u>HA</u> 08-1	S4	7.0-9.0	silty sand	0.0	0.0			х			
HA08-1	S5	10.0-12.0	sandy organic soil, with shells	0.0	0.0			х			
HA08-1	S6	12.0-14.0	sandy organic soil, with shells	0.0	0.0	Tinfoil cover torn		X			
HA08-10	S1	0.0-2.0	sandy silt, brick	0.0	0.0			х			
HA08-10	S2	2.0-4.0	silty sand	0.0	0.0		_	x		_	
HA08-10	S3	4.0-6.0	silty sand	0.0	0.0			х			
HA08-10	S4	6.0-8.0	silty sand, wood w/ creosote	0.0	0.0			х			
HA08-10	S5	8.0-10.0	sandy organic silt, brick, metal	0.0	0.0		_	х			
HA08-2	S1	0.0-2.0	silty sand, wood and ash	0.0	0.0			х			
HA08-2	S2	4.0-6.0	poorly graded sand	0.0	0.0			х			
HA08-2	S3	6.0-8.0	poorly graded sand	0.0	0.0			х			
HA08-2	S4	8.0-10.0	silty gravel, shells and wood	0.0	0.0	· · · · · · · · · · · · · · · · · · ·		х			
HA08-2	S5	10.0-12.0	poorly graded gravel	0.0	0.0	-		х			

- 1. Instrument calibrated to the manufacturer standard.
- 2. ppm represents concentration of detectable volatile gaseous compounds in parts per million of air.
- 3. Sample assigned for gas chromatograph screening.

Sampled and relinquished by:	Received by:	Relinquished by:	Received by:
Sign: NA	Sign: NA	Sign: NA	Sign: NA
Print: NA	Print: NA	Print: NA	Print: NA
Firm: NA	Firm: NA	Firm: NA	Firm: NA
Date: NA Time: NA	Date: NA Time: NA	Date: NA Time: NA	Date: NA Time: NA

APPENDIX F

Historic Sanborn Maps





PUBLISHED BY THE

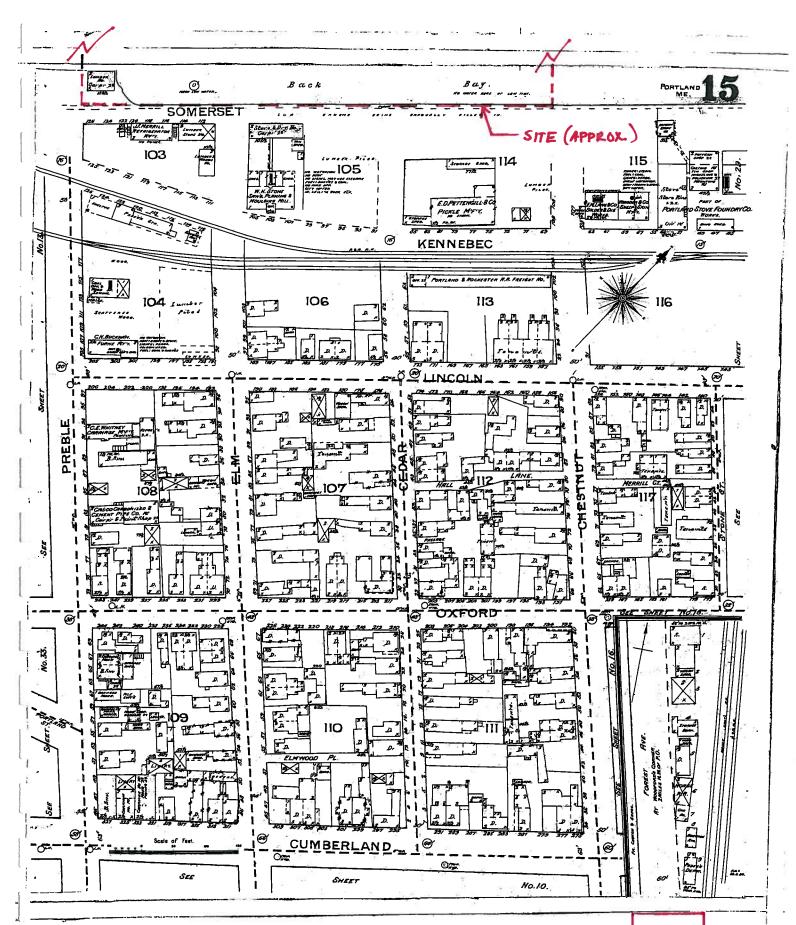
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OCT, 1886



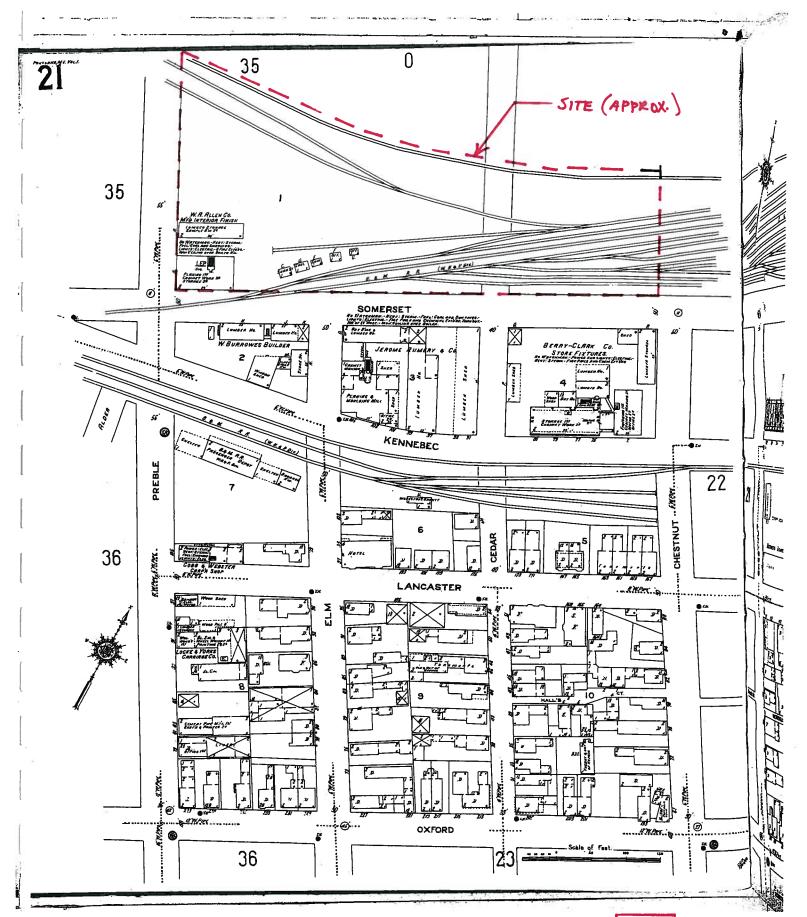
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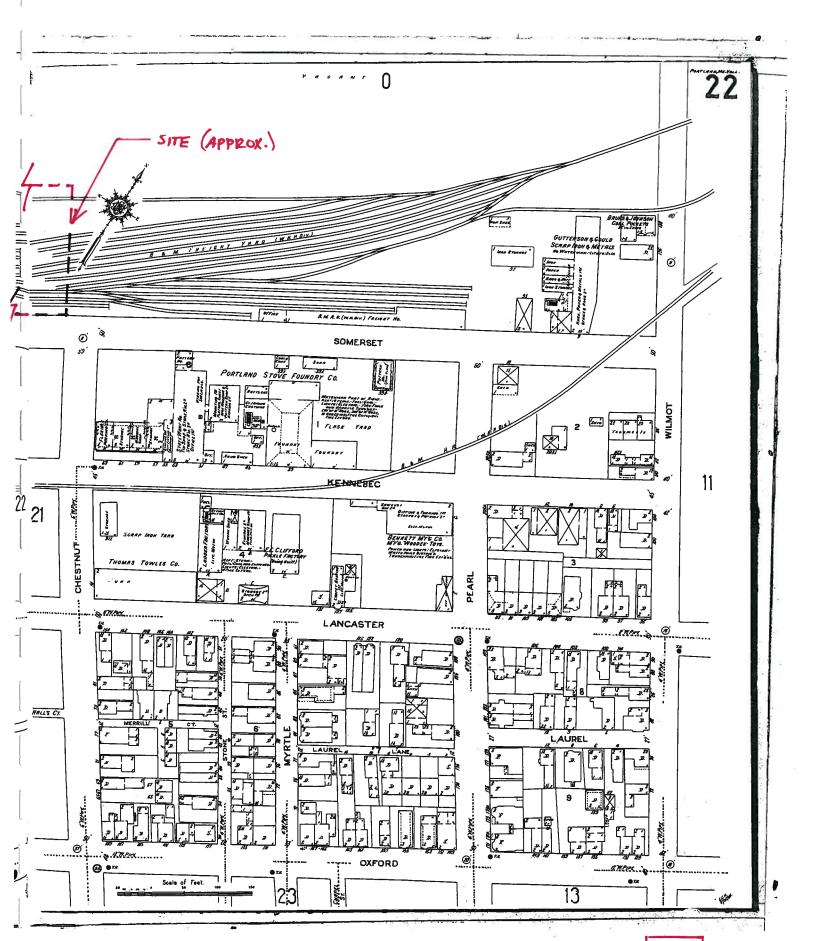




Copylight reserved Syring Co. Copylight reserved Syring Co. Copylight reserved Syring Co. Copylight reserved Syring Co. Copylight reserved Copylight reserved Copyl

ALL RIGHTS SCHENCES, HE MAT OF THIS MAS MAY OF REPRESENCES OF ANY THOM WITHOUT WINTER PERSISSION FROM THE SANSONN

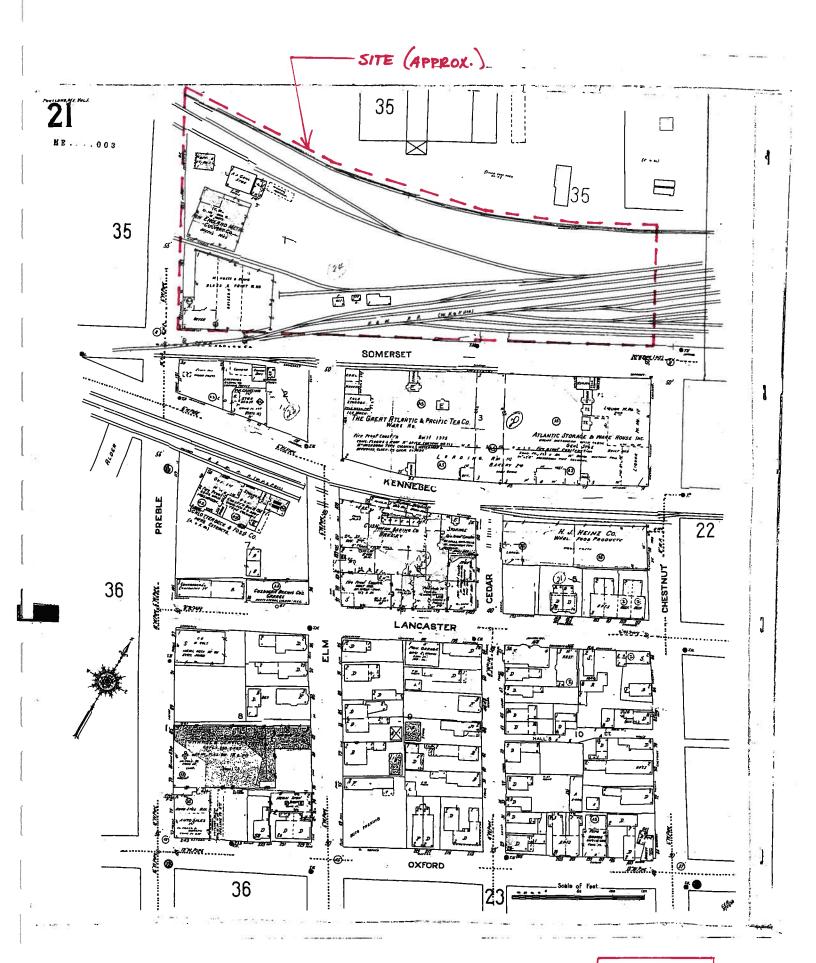


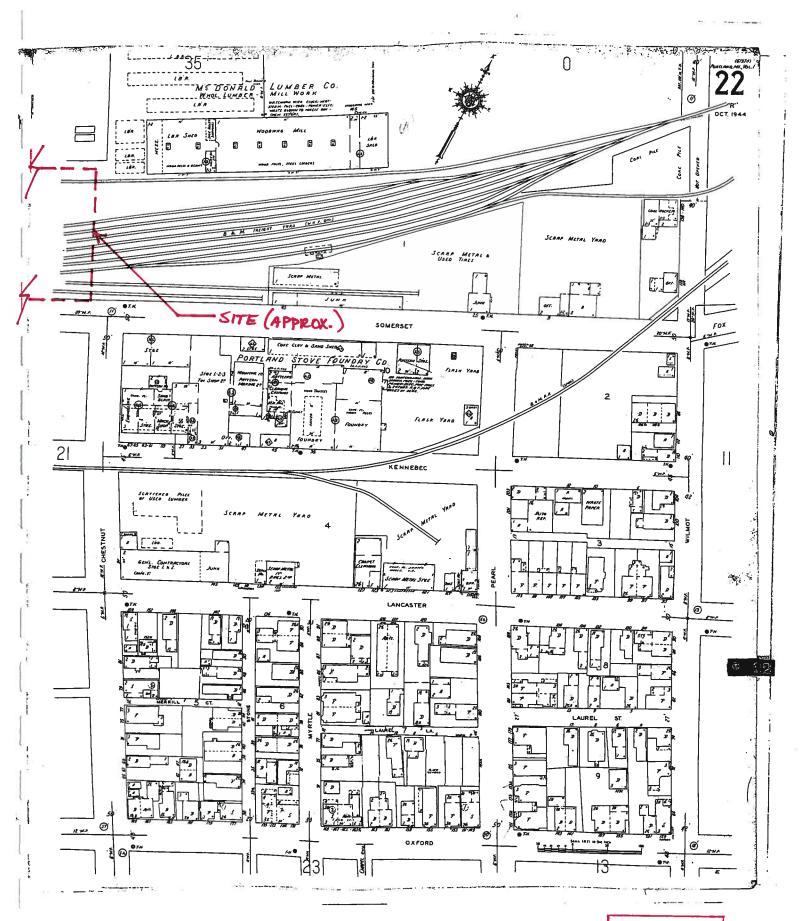


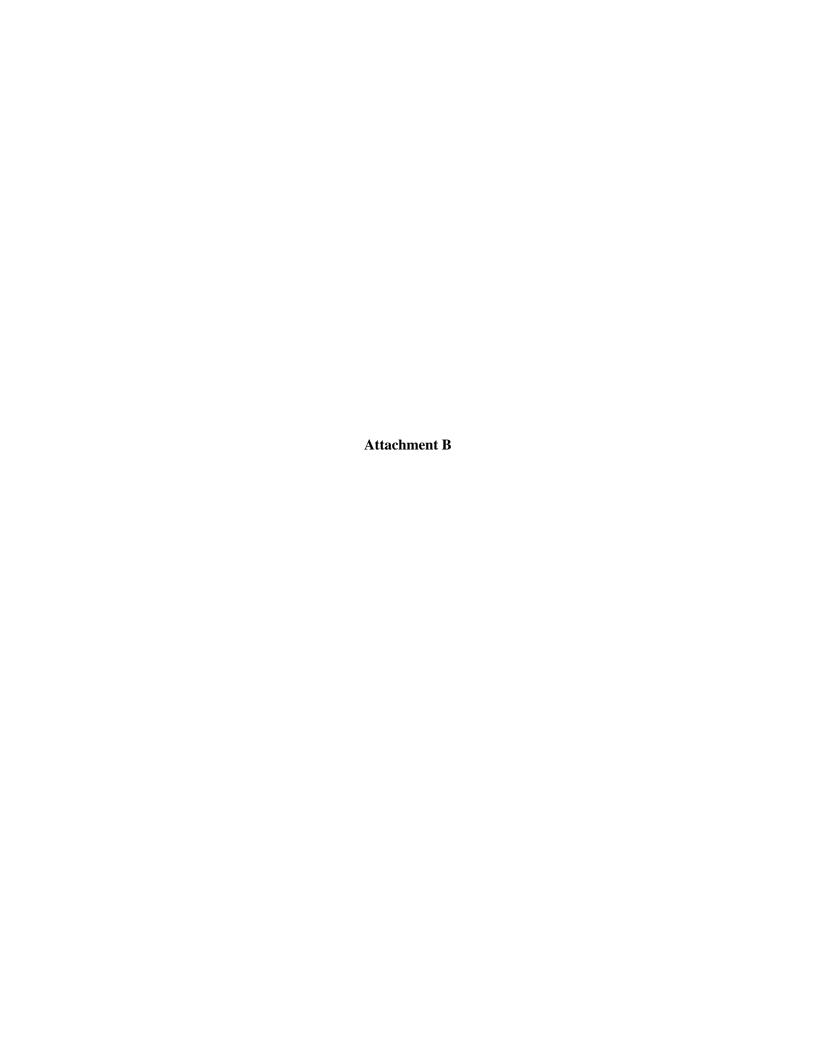




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Haley & Aldrich 75 Washington Avenue Suite 203 Portland, ME 04101-2617

Tel: 207.482.4600 Fax: 207.775.7666 Haley Aldrich.com



MEMORANDUM

4 December 2008 File No. 35611-000, -010

TO:

Maine Medical Center

Mr. Daniel F. Doughty, AIA,

Ms. Nancy Innes

C:

Harriman Associates, Inc.; Patrick Costin, AIA, Keith Brenner, P.E.

Becker Structural Engineers; Todd Neal, P.E. Scott Simons Architects; Scott Simons, AIA Woodard & Curran; Barry Sheff, P.E. Consigli Construction Co.; David Thomas

FROM:

Haley & Aldrich, Inc.

Bryan C. Steinert, Wayne A. Chadbourne, P.E.

SUBJECT:

Results of Test Pit Exploration Program

Maine Health/United Way Development

Somerset and Chestnut Streets

Portland, Maine

This memorandum presents a summary of the exploratory test pit excavations performed for the subject project. This work was performed in accordance with our proposal dated 2 July 2008 and your subsequent authorization. The information summarized herein will be used by Haley & Aldrich and the rest of the design team to assess dewatering requirements for construction of the below-grade elements (i.e., grade beams, pile caps, elevator pits, utilities) of the proposed parking garage and office building.

ELEVATION DATUM

Elevations referenced herein are in feet and reference Portland City Datum (PCD). Portland City Datum relates to the National Geodetic Vertical Datum of 1929 (NGVD 29) as follows:

Elevation in feet (PCD) = Elevation in ft (NGVD 29) + 0.02 ft

TEST PIT EXPLORATIONS

Three exploratory test pits, designated TP-201 through TP-203, were excavated by Environmental Projects, Inc. (EPI) of Auburn, Maine on 20 October 2008. The test pits were excavated in the vicinity of previously installed groundwater observation wells using a Komatsu PC 35MR excavator. The test pits were excavated to depths ranging from approximately 8 to 11 ft below existing ground surface (BGS). A Haley & Aldrich engineer

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was on-site to monitor the excavations and to prepare logs detailing the soil and groundwater conditions encountered in each test pit. Upon completion, each excavation was backfilled up to ground surface. Approximate 16-in. thick lifts of excavated soils were used to backfill each test pit excavation. Each lift was moderately compacted using down-pressure from the excavator bucket. The approximate test pit locations are shown on the attached site plan. Test pit logs documenting encountered subsurface conditions and photographs taken during the test pit program are also attached.

SOIL AND GROUNDWATER CONDITIONS

Soil Conditions

Based on our review of historic Sanborn maps, this area of Bayside was once a tidal mudflat. At various times over the past century the site has been filled as the area has undergone development. Based on our test borings and test pits, 10 to 15 ft of man-placed fill soils are present within the footprints of the proposed office building and garage. As is typical of this material, the fill encountered in the test pit excavations was not uniform and primarily consisted of the following soil types:

- silty SAND (SM) with varying percentages of gravel
- poorly graded to well graded SAND (SP to SW) with varying percentages of silt and gravel

Please note that we encountered an undetermined thickness of reworked clay fill in the western portion of TP-203 below El. 5.5. Clay fill was not encountered in the other test pits or previous test borings (including boring HA08-5(OW) located approximately 10 ft northeast of TP-203). The fill soils generally contained ash, cinders, brick, concrete and porcelain fragments (see photographs). In addition, timber railroad ties and steel rails were encountered between 1 and 2 ft BGS in TP-201 (see photographs).

Groundwater Conditions

Groundwater levels have been measured in the observation wells installed in completed boreholes HA08-5, HA08-7 and HA08-12 over the past several months. Back in August, downhole transducers were installed in these wells and groundwater levels were measured every 15 minutes (from 7 August to 22 August 2008). This was done to estimate the depth to the static groundwater levels at the site and to determine whether the groundwater levels are influenced by tidal fluctuations in nearby Back Cove. Based on the data collected in August 2008, groundwater levels were measured between 6 and 8 ft below existing ground surface, and the levels in the wells were determined not to be influenced by tidal fluctuations in Back Cove.

During the test pit program in October 2008, groundwater was encountered in each test pit excavation and ranged in depth from 6.5 to 10.5 ft BGS (stabilized levels). Water levels in the nearby observation wells were also measured during execution of the test pit program.

Groundwater levels have been measured in the observations wells twice since October 2008. The most recent measurements (1 December 2008) were conducted after a period of significant precipitation had occurred (2.0 in. of rain on 25 November and 0.75 in. of rain on 30 November).



A tabular summary of the water levels measured in the observation wells and test pits is provided below. Please note that the elevations are approximate and were based on ground topographic data provided by Woodard & Curran.

Exploration	Ave. Groundwater Level Measured in Observation Well August 2008	Groundwater Level Measured in Observation Well on 10/20/08	Groundwater Level Measured in Test Pit Excavated on 10/20/08	Groundwater Level Measured in Observation Well on 12/1/08
TP-201/ HA08-12(OW)	El. 4.8	El. 5.1	El. 4.5	El. 5.8
TP-202/ HA08-7(OW)	El. 4.3	El. 4.6	El. 4.0	El. 5.0
TP-203/ HA08-5(OW)	El. 1.3	El. 0.9	El1.5	El. 1.1

It is our opinion that the relatively low groundwater levels measured in TP-203 and HA08-5(OW) are a result of the presence of the clay fill material that is present in this area. The plan extent of the clay fill is not known. We have attached the groundwater monitoring reports for the three observation wells at the site with updated data through 1 December 2008.

Please note that the water levels in the observation wells rose as much as 1 ft from the October reading to the early December reading.

The test pits were excavated to depths coincident with the depth that groundwater infiltration into the test pits was observed. Based on measurements of recharge/recovery of the water levels in the test pits, we estimated groundwater infiltration rates of 5 to 10 gallons per minute (gpm). Each test pit was left open for approximately 1.5 hours. Water levels in the open test pits were measured and appeared to stabilize after approximately 30 minutes.

CONSTRUCTION DEWATERING

Based on a proposed lowest-level floor slab at El. 11 and an average pile cap thickness of 4 ft, we estimate that the bottom of the excavations for the pile caps and grade beams will be at approximately El. 6 (approximate). Also, it is our understanding that the bottom of the elevator pit excavations will be approximately 1 to 2 ft below the bottom of the pile caps/grade beams, or approximately El. 4.

Based on the anticipated depth of excavations and the measured groundwater data summarized above, we anticipate that groundwater will be encountered in excavations required for construction of both the grade beams and pile caps and elevator pits. Based on our understanding of the current construction schedule, excavation work for grade beams, pile caps and elevator pits will be conducted in the winter of 2009. Because of this, we anticipate that groundwater levels encountered at the site will be within the levels summarized in the table above. Please note however, that we do not have any groundwater data during the springtime snowmelt period, a time of the year when groundwater levels are typically the highest. As a result, if the foundation excavation and utility installation work is delayed and slips into the spring of 2009, the groundwater levels encountered at that time could be several feet higher than El. 6.



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Based on the anticipated bottom of excavation levels, we expect that dewatering could be performed using a series of open sumps and temporary ditches within the excavations. Sumps should be capable of pumping at least 10 gpm and be provided with filters suitable to prevent pumping of fine-grained soil particles. Rainwater or snowmelt should be directed away from exposed soil bearing surfaces.

Dewatering and discharge of dewatering effluent should be performed in accordance with all applicable local, state and federal regulations. Due to physical site constraints, we anticipate that on-site recharge will not be feasible and that dewatering discharge will likely need to be directed to the local storm drain system. Sedimentation tanks and other treatment equipment may be required for legal disposal of the effluent. If dewatering effluent is discharged into a storm drain system that empties into the Back Cove, a NPDES permit will be required for legal disposal of the effluent.

CLOSURE

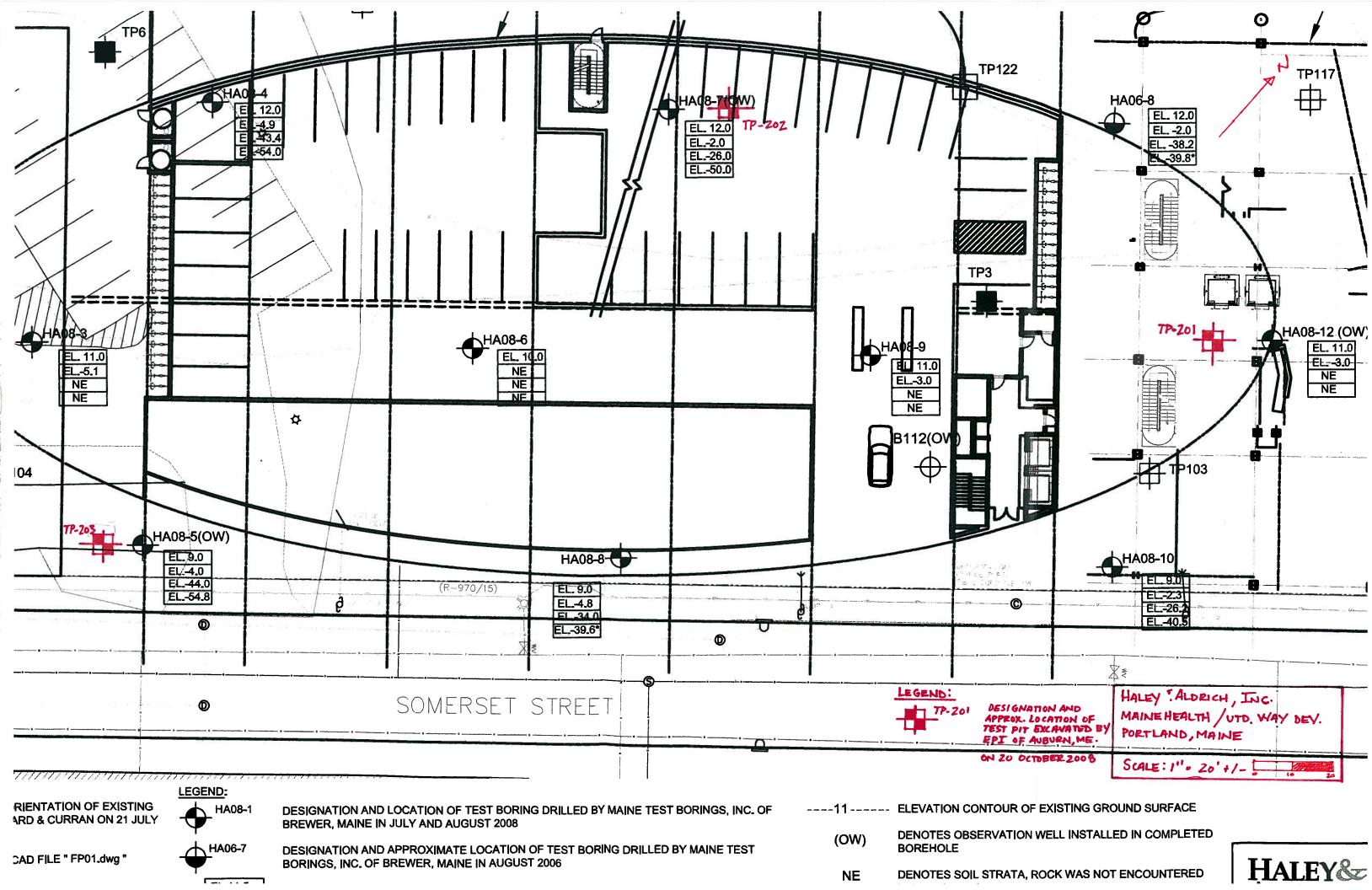
We trust this provides sufficient information to proceed with design development and estimation of project costs for construction dewatering. Please do not hesitate to contact us if you require additional information.

Attachments:
Test Pit Location Plan (1 sheet)
Test Pit Logs (3 sheets)
Photographs (3 sheets)
Groundwater Monitoring Data (3 sheets)

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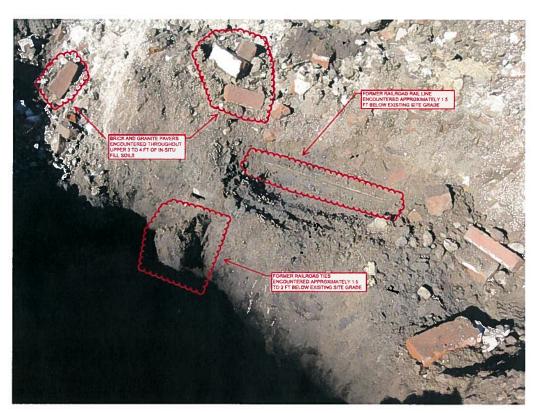


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				-FILI	L-									
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Cont	tractor	Environn	nental P	rojects, Inc.				Date	te 20 October 2008								
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				Black, silty S	SAND with gravel (S)	M), mps 2 bragment	in., no structure, no odo s, clinker-like material	r,									
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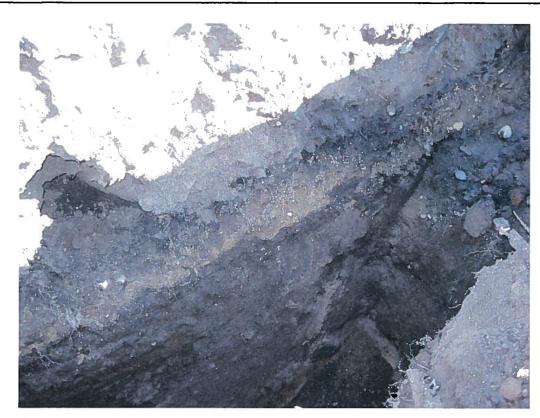
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Photograph 1. In-situ fill soils encountered in TP-201, looking northwest (10/20/08).



Photograph 2. In-situ fill soils and groundwater encountered in TP-201, looking northwest (10/20/08).



Photograph 3. In-situ fill soils encountered in TP-202, looking north (10/20/08).



Photograph 4. In-situ fill soils and groundwater encountered in TP-202, looking southeast (10/20/08).

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GROUNDWATER MONITORING REPORT

OW/PZ NUMBER HA08-5(OW)

Page of PROJECT Maine Health/United Way Development 35611-000 H&A FILE NO. LOCATION Portland, Maine PROJECT MGR. W. Chadbourne CLIENT Maine Medical Center FIELD REP. O. Lawlor CONTRACTOR Maine Test Borings, Inc. 8/4/2008 DATE

ELEVATION SUBTRAHEND 9.0 (Approximate)

ELEVATION	N SUBTRAH				_	
Date	Time	Elapsed Time (days)	Depth of Water from Top of Riser Pipe	Elevation of Water	Remarks	Read By
8/4/2008	1200	0	7.3	4.5	GW level prior to well development	OEL
8/4/2008	1240	0	9.5	2.3	GW level after well development	OEL
8/7/2008	1805	3	7.9	3.9	GW level prior to level logger install.	CLH
8/22/2008	1000	18	8.3	3.5	GW level after level logger removal	CLH
10/20/2008	1200	77	10.9	0.9	GW level during TP-203 excavation	BCS
11/17/2008	1131	105	10.8	1.0		ECB
12/1/2008	1353	119	10.7	1.1		BCS
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HALEY& ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER

HA08-7(OW)

Page 1 of PROJECT Maine Health/United Way Development 35611-000 H&A FILE NO. LOCATION Portland, Maine PROJECT MGR. W. Chadbourne CLIENT Maine Medical Center FIELD REP. O. Lawlor CONTRACTOR Maine Test Borings, Inc. 8/4/2008 DATE

ELEVATION	N SUBTRAH		.0 (Approximate)		- -	
Date	Time	Elapsed Time (days)	Depth of Water from Top of Riser Pipe	Elevation of Water	Remarks	Read By
8/4/2008	1115	0	10.3	4.5	GW level prior to well development	OEL
8/4/2008	1140	0	12.3	2.5	GW level after well development	OEL
8/7/2008	1800	3	10.2	4.6	GW level prior to level logger install.	CLH
8/22/2008	950	18	10.1	4.7	GW level after level logger removal	CLH
10/20/2008	1200	77	10.2	4.6	GW level during TP-202 excavation	BCS
11/17/2008	1134	105	10.2	4.6		ECB
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HALEY& ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER

HA08-12(OW)

Page of PROJECT Maine Health/United Way Development 35611-000 H&A FILE NO. LOCATION Portland, Maine PROJECT MGR. W. Chadbourne CLIENT Maine Medical Center FIELD REP. O. Lawlor CONTRACTOR 8/4/2008 Maine Test Borings, Inc. DATE

ELEVATION SUBTRAHEND	11.0	(Approximate)
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	N SUBTRAH		.0 (Approximate)		_	 _
Date	Time	Elapsed Time (days)	Depth of Water from Top of Riser Pipe	Elevation of Water	Remarks	Read B
8/4/2008	1030	0	8.9	4.9	GW level prior to well development	OEL
8/4/2008	1100	0	9.0	4.8	GW level after well development	OEL
8/7/2008	1745	3	8.6	5.2	GW level prior to level logger install.	CLH
8/22/2008	945	18	8.4	5.4	GW level after level logger removal	CLH
10/20/2008	1200	77	8.7	5.1	GW level during TP-201 excavation	BCS
11/17/2008	1137	105	8.5	5.3		ECB
12/1/2008	1358	119	8.0	5.8		BCS
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